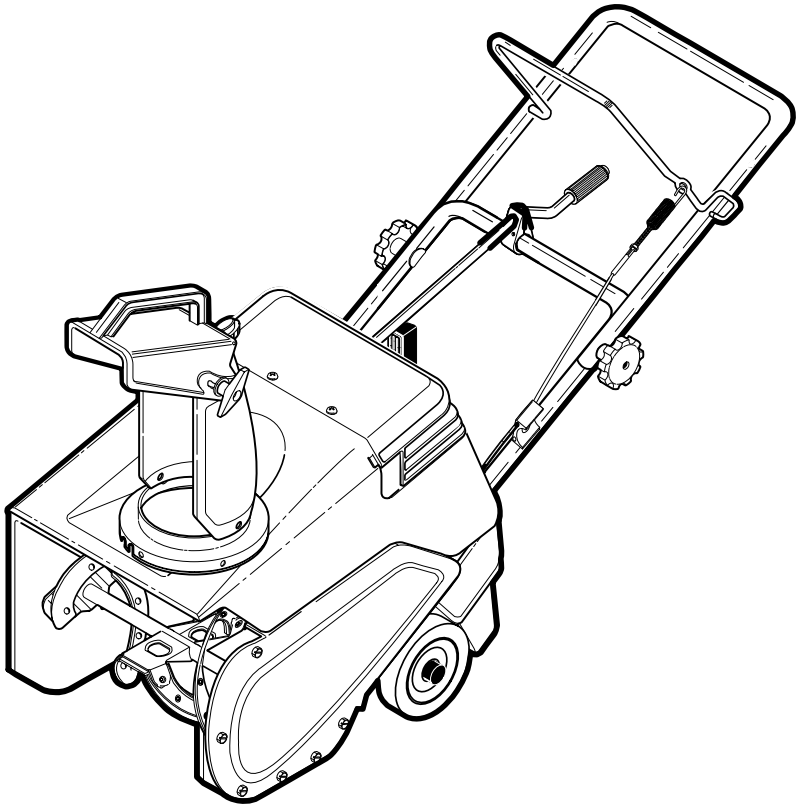
ST0521M
ST0521E
Snow Thrower

OPERATOR'S MANUAL



FRONTIER EQUIPMENT™

MTF-031039C

INTRODUCTION

Congratulations on your purchase of a Frontier Snowthrower. It has been designed, engineered and manufactured to give you the best possible dependability and performance. However, like all mechanical products, your machine will occasionally require adjustment and maintenance. This handbook should be read before operating or performing and adjustments on your machine.

The instructions in this Owner's Manual are written for a person with some mechanical ability. Like most service books, not all the steps are described. Steps on how to loosen or tighten fasteners are steps anyone can follow with some mechanical ability. Read and follow these instructions before you use the unit.

Know your product:: If you understand the unit and how the unit operates, you will get the best performance. As you read this manual, compare the illustrations to the unit. Learn the location and the function of the controls. To help prevent an accident, follow the operating instructions and the safety rules. Keep this manual for future reference.

I**MPORTANT:** Many units are not assembled and are sold in cartons. It is the responsibility of the owner to make sure the assembly instructions in this manual are exactly followed. Other units are purchased in an assembled condition. On assembled units, it is the responsibility of the owner to make sure the unit is correctly assembled. The owner must carefully check the unit according to the instructions in this manual before it is first used.

The warranty, found in this manual, details the coverage and limitations of this product. **Registration of the warranty is necessary and must be preformed by the dealer within sixty (60) days from the date of retail sale or delivery.** The Warranty Registration Form is located on the Frontier website.

RESPONSIBILITY OF THE OWNER

The responsibility of the owners to follow the instructions below.

1. Carefully read and follow the rules for safe operation.
2. Follow all the assembly instructions.
3. Inspect the unit.
4. Make sure that the operator of the unit knows how to correctly use all standard and accessory equipment.
5. Operate the unit only with guards, shields, and other safety items in place and working correctly.
6. Correctly adjust the unit.
7. Service the unit only with authorized or approved replacement parts.
8. Complete all maintenance on the unit.

PRODUCT INFORMATION

The owner must be certain that all the product information is included with this unit. This information includes the *INSTRUCTION BOOKS*, the *REPLACEMENT PARTS* and the *WARRANTIES*. This information must be included to make sure state laws and other laws are followed.

Read And Keep This Book For Future Reference. This Book Contains Important Information On:

SAFETY, ASSEMBLY, OPERATION AND MAINTENANCE.

RULES FOR SAFE OPERATION

IMPORTANT

WARNING: Always disconnect the spark plug wire and place it where it cannot make contact with spark plug to prevent accidental starting during: Preparation, Maintenance, or Storage of your snowthrower.

Safe Operation Practices for Snowthrowers
As Recommended By: American National Standards Institute.

WARNING:

Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. WASH HANDS AFTER HANDLING.

IMPORTANT: Safety standards require operator presence controls to minimize the risk of injury. Your snowthrower is equipped with such controls. Do not attempt to defeat the function of the operator presence control under any circumstances.

Training

1. Read the operating and service instruction manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the unit and disengage the controls quickly.
2. Never allow children to operate the equipment. Never allow adults to operate the equipment without proper instruction.
3. Keep the area of operation clear of all persons, particularly small children and pets.
4. Exercise caution to avoid slipping or falling especially when operating in reverse.

Preparation

1. Thoroughly inspect the area where the equipment is to be used and remove all doormats, sleds, boards, wires, and other foreign objects.
2. Disengage all clutches before starting the engine (motor).
3. Do not operate the equipment without wearing adequate winter outer garments. Wear footwear that will improve footing on slippery surfaces.
4. Handle fuel with care; it is highly flammable.
   a. Use an approved fuel container.
   b. Never remove fuel tank cap or add fuel to a running engine (motor) or hot engine (motor).
   c. Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors.
   d. Replace fuel cap securely and wipe up spilled fuel.
   e. Never store fuel or snowthrower with fuel in the tank inside of a building where fumes may reach an open flame or spark.
   f. Check fuel supply before each use, allowing space for expansion as the heat of the engine (motor) and/or sun can cause fuel to expand.
5. For all units with electric starting motors use electric starting extension cords certified CSA/UL. Use only with a receptacle that has been installed in accordance with local inspection authorities.
6. Adjust the snowthrower height to clear gravel or crushed rock surface.
7. Never attempt to make any adjustments while the engine (motor) is running (except when specifically recommended by manufacturer).
8. Let engine (motor) and snowthrower adjust to outdoor temperatures before starting to clear snow.
9. Always wear safety glasses or eye shields during operation or while performing an adjustment or repair to protect eyes from foreign objects that may be thrown from the snowthrower.

Operation

1. Do not operate this machine if you are taking drugs or other medication which can cause drowsiness or affect your ability to operate this machine.
2. Do not use this machine if you are mentally or physically unable to operate this machine safely.
3. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
4. Exercise extreme caution when operating on or crossing gravel drives, walks or roads. Stay alert for hidden hazards or traffic.
5. After striking a foreign object, stop the engine (motor), remove the wire from the spark plug, thoroughly inspect snowthrower for any damage, and repair the damage before restarting and operating the snowthrower.
6. If the unit should start to vibrate abnormally, stop the engine (motor) and check immediately for the cause. Vibration is generally a warning of trouble.

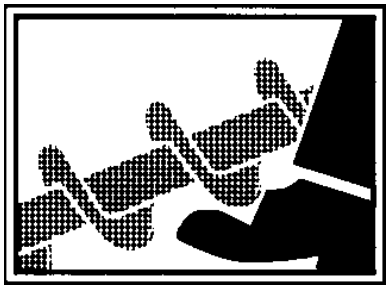
RULES FOR SAFE OPERATION

7. Stop the engine (motor) whenever you leave the operating position, before unclogging the auger/impeller housing or discharge chute and when making any repairs, adjustments, or inspections.
8. When cleaning, repairing, or inspecting, make certain the auger/impeller and all moving parts have stopped and all controls are disengaged. Disconnect the spark plug wire and keep the wire away from the spark plug to prevent accidental starting.
9. Take all possible precautions when leaving the snowthrower unattended. Disengage the auger/ impeller, stop engine (motor), and remove key.
10. Do not run the engine (motor) indoors, except when starting the engine (motor) and for transporting the snowthrower in or out of the building. Open the outside doors; exhaust fumes are dangerous (containing CARBON MONOXIDE, an ODORLESS and DEADLY GAS).
11. Do not clear snow across the face of slopes. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
12. Never operate the snowthrower without proper guards, plates or other safety protective devices in place.
13. Never operate the snowthrower near enclosures, automobiles, window wells, drop- offs, and the like without proper adjustment of the snow discharge angle. Keep children and pets away.
14. Do not overload the machine capacity by attempting to clear snow at too fast a rate.
15. Never operate the machine at high transport speeds on slippery surfaces. Look behind and use care when backing up.
16. Never direct discharge at bystanders or allow anyone in front of the unit.
17. Disengage power to the collector/impeller when snowthrower is transported or not in use.
18. Use only attachments and accessories approved by the manufacturer of the snowthrower (such as tire chains, electric start kits, ect.).
19. Never operate the snowthrower without good visibility or light. Always be sure of your footing and keep a firm hold on the handles. Walk;never run.
20. Do not over- reach. Keep proper footing and balance at all times.
21. Exercise caution if operating on steep sloping surfaces.
22. This snowthrower is for use on sidewalks, driveways and other ground level surfaces.
23. Do not use the snowthrower on surfaces above ground level such as roofs of residences, garages, porches or other such structures or buildings.

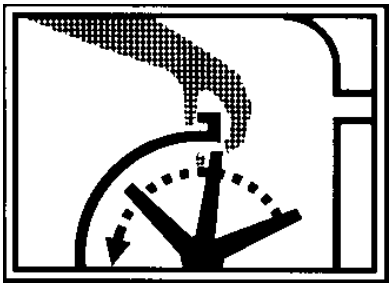
Maintenance And Storage

1. Check shear bolts and other bolts at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
2. Never store the snowthrower with fuel in the tank inside a building where ignition sources are present such as hot water and space heaters, clothes dryers, and the like. Allow the engine (motor) to cool before storing in any enclosure.
3. Always refer to operator's guide instructions for important details if the snowthrower is to be stored for an extended period.
4. Maintain or replace safety and instruction labels, as necessary.
5. Run the snowthrower a few minutes after throwing snow to prevent freeze- up of the auger/impeller.

WARNING: Avoid injury from rotating auger- keep hands, feet, and clothing away.



WARNING: Do not use hands to unclog discharge chute.



- **Stop engine/motor before removing debris.**
- **Do not walk in front of running machine.**
- **Do not discharge at bystanders.**
- **Keep people and pets a safe distance from the machine.**
- **Before leaving machine, shut off engine/ motor and remove key.**

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SAFETY DECALS

WARNING: If safety decals are damaged or missing, replace immediately.

Look for this symbol to indicate important safety precautions. This symbol indicates: "Attention! Become Alert! Your Safety Is At Risk."

Before operation of your snowthrower, read the safety decals as shown on your snowthrower. The cautions and warnings are for your safety. To avoid a personal injury or damage to your snowthrower, understand and follow all safety decals. If you have any questions regarding the meaning or how to comply with the instructions, do not operate until you understand the purpose for the warning or danger given in the safety decal. If you do not understand the meaning, then thoroughly read all safety and operation instructions in this Owner's Manual or contact your local dealer.

If any safety decals become worn or damaged and cannot be read, order replacement decals from your local dealer.

Identifying Your Snowthrower

The snowthrower has two (2) identifying numbers: (1) unit model number: (2) unit serial number. The two preceding numbers are required to insure that the proper replacement parts are obtained when required. If you have any questions concerning parts, service, or technical data, contact the dealer where the unit was purchased.
For complete warranty information refer to the warranty in the Owner's Information section of this manual.

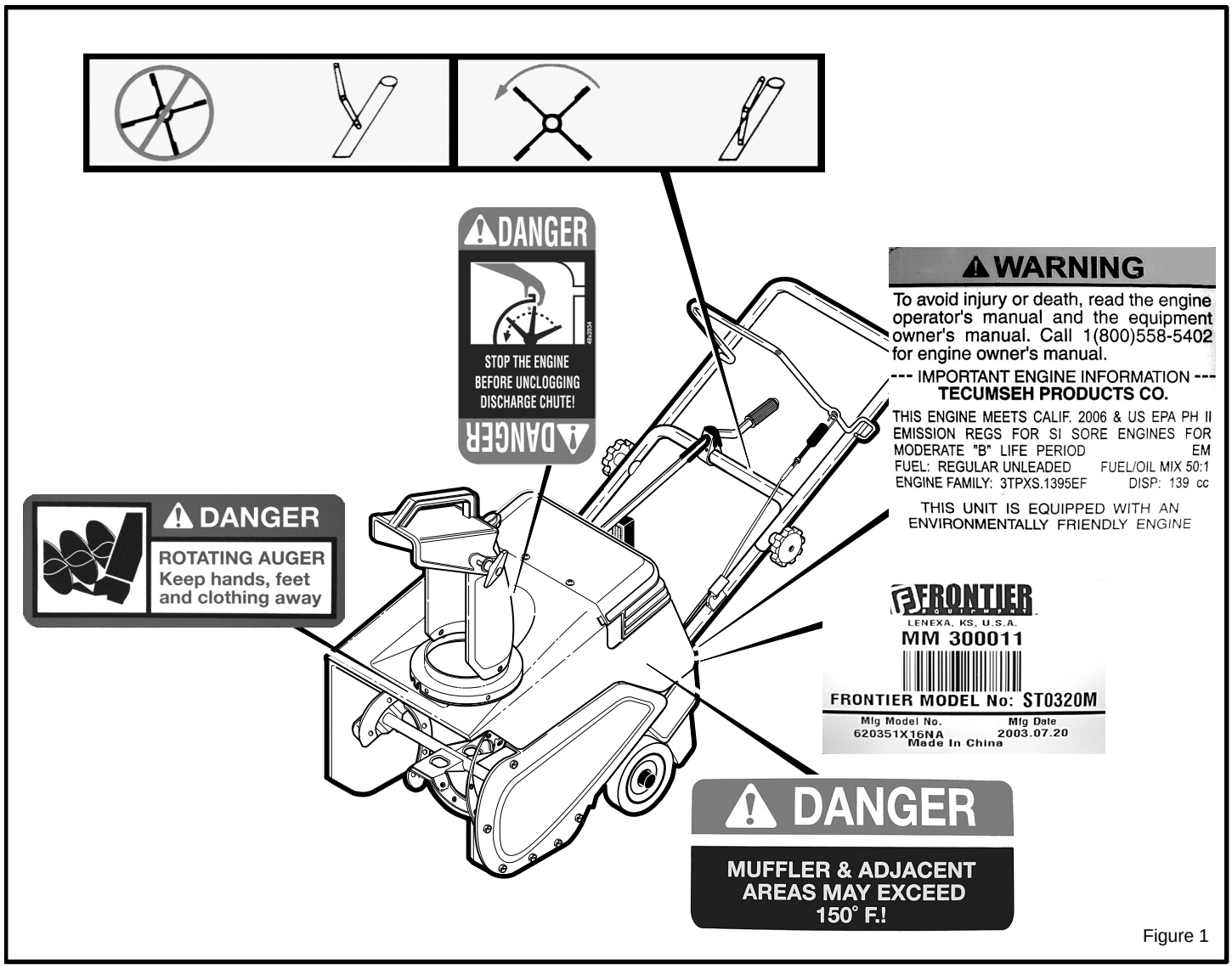

DANGER
STOP THE ENGINE BEFORE UNCLOGGING DISCHARGE CHUTE!
DANGER
DANGER
ROTATING AUGER
Keep hands, feet and clothing away
WARNING
To avoid injury or death, read the engine operator's manual and the equipment owner's manual. Call 1(800)558-5402 for engine owner's manual.
--- IMPORTANT ENGINE INFORMATION ---
TECUMSEH PRODUCTS CO.
THIS ENGINE MEETS CALIF. 2006 & US EPA PH II EMISSION REGS FOR SI SORE ENGINES FOR MODERATE "B" LIFE PERIOD EM
FUEL: REGULAR UNLEADED FUEL/OIL MIX 50:1
ENGINE FAMILY: 3TPXS.1395EF DISP: 139 cc
THIS UNIT IS EQUIPPED WITH AN ENVIRONMENTALLY FRIENDLY ENGINE
FRONTIER EQUIPMENT
LENEXA, KS, U.S.A.
MM 300011
FRONTIER MODEL No: ST0320M
Mfg Model No. 620351X16NA
Mfg Date 2003.07.20
Made In China
DANGER
MUFFLER & ADJACENT AREAS MAY EXCEED 150° F.!

Figure 1

OWNER'S INFORMATION

THREE YEAR LIMITED WARRANTY

Murray warrants to the original purchaser of this Frontier Branded Snowthrower that this unit shall be free from defects in material and workmanship under normal use and service for a period of **Three (3) Year** from the date of purchase; however, this warranty does not cover accessories (such as electric starters) and Normal Wear Parts (except as noted below) as the companies that manufacture these items furnish their own warranties and provide service through their authorized field service facilities. For additional information, see the warranties covering these particular parts. If you are uncertain whether your unit contains or is equipped with one or more of these parts, consult your dealer prior to purchase. Subject to the terms and conditions noted in this Limited Warranty, we shall, at our option, repair or replace at no cost to the original purchaser any part covered by this Limited Warranty during the applicable warranty period.

Normal Wear Parts are defined as drive belts, augers, shear pins, tires and headlights. These parts are warranted to be free from defects in material and workmanship as delivered with the product. Any claim for repair or replacement of Normal Wear Parts must be made within thirty (30) days of the date of purchase. No claims involving damage caused from material use, abuse or misuse will be honored.

This Murray **Three (3) Year Limited Warranty** for your Frontier Branded Snowthrower is your exclusive remedy; however, this warranty is void or does not apply to any unit that has been tampered with, altered, misused, abused. If used for commercial and/or professional (non-homeowner) uses, the duration of this warranty is ninety (90) days after the date of purchase. Your warranty does not cover minor mechanical adjustments which are not due to any defect in material or workmanship. For assistance in making such adjustments, consult your Operator's Manual.

The engine on this Frontier Branded Snowthrower is warranted to the original purchaser for only a **Two (2) Year Limited Warranty**. See your engine manual for information regarding the warranty policy and items covered under warranty. See your authorized John Deere/Frontier Dealer for service or replacement parts. ***MT***

To make a claim under this Murray **Three (3) Year Limited Warranty** for your Frontier Branded Snowthrower, return the unit (or if authorized in advance, the defective part) along with your proof of purchase to an Authorized John Deere/Frontier Dealer near you. To locate the nearest Authorized John Deere/Frontier Dealer, check the Yellow Page listings in your local telephone directory. If you return the entire unit, John Deere/Frontier will repair all warranty items. If authorize to return the defective part only, John Deere/Frontier will either replace or repair the part. This Murray **Three (3) Year Limited Warranty** for your Frontier Branded Snowthrower gives you specific legal rights, and you may also have other rights which vary from state to state. **This Limited Warranty is given in lieu of all other expressed and implied warranties including the implied warranty of merchantability and warranty of fitness for a particular purpose.** If you need additional information on this written warranty or assistance in obtaining service, contact you local John Deere/Frontier Dealer.

FOR YOUR RECORDS

DATE PURCHASED: _____

MODEL NO: _____

SERIAL NO: _____

STORE WHERE PURCHASED: _____

ADDRESS: _____

CITY: _____ STATE: _____

TELEPHONE : _____

Record this information about your unit so that you will be able to provide it in case of loss or theft.

ASSEMBLY

PARTS BAGS CONTENTS:

1 - 2.6 ounces 2-cycle oil

1 - Owner's Manual

TOOLS REQUIRED FOR ASSEMBLY

1-Knife

1-Pliers

2-Adjustable Wrenches

WARNING: Always wear safety glasses or eye shields while assembling the snowthrower.

Figure 6 shows the snow thrower in the operating position.

References to the right or left hand side of the snow thrower are from the viewpoint of the operator's position behind the unit.

HOW TO REMOVE THE SNOW THROWER FROM THE CARTON

1. Locate all parts that are packed separately and remove from the carton.
2. Remove and discard the packing material from around the snow thrower.
3. Cut down all four corners of the carton and lay the side panels flat.
4. Cut off the plastic bag that covers the snowthrower.
5. Hold onto the lower handle and pull the snow thrower off the carton.

   CAUTION: DO NOT back over cables.
6. Remove the packing material from the handle assembly.

HOW TO INSTALL THE CHUTE CRANK

1. Remove the **screw** and **nut** from the **shaft** (see Figure 2).
2. Put the **chute crank rod** through the bracket on the lower handlebar.
3. Install the **chute crank rod** onto the **shaft.**
4. Fasten the **chute crank rod** with the **screw** and **nut** that were removed in step 1.
5. Raise the upper **handle** to the operating position. Hold the upper **handle** apart to prevent scratching the lower handle.
6. Line up the holes.Tighten the **knobs.**

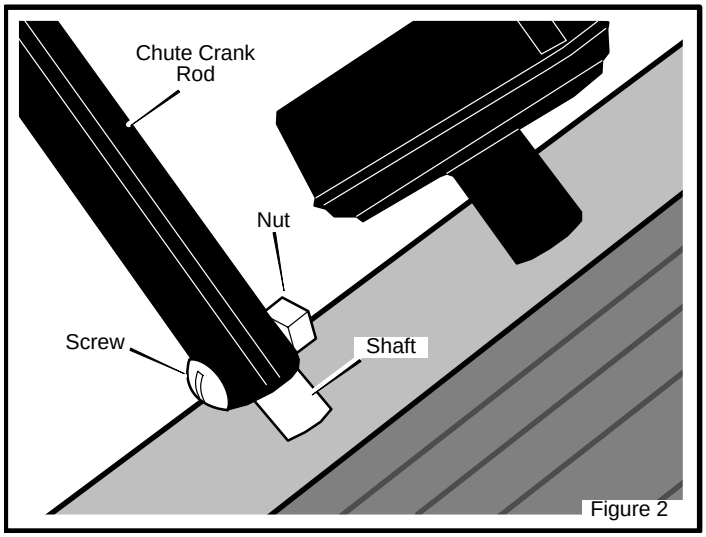


Figure 2

ASSEMBLY

HOW TO ASSEMBLE THE HANDLE

1. Remove the packing material from the upper and lower handles.
2. Loosen the **knobs** on each side of the **handle.** (See Figure 3)
3. Raise the upper **handle** to the operating position (see Figure 4). Hold the upper **handle** apart to prevent scratching the lower handle.

NOTE: Make sure the cables are not caught between the upper and lower handle.

4. Tighten the **knobs.**

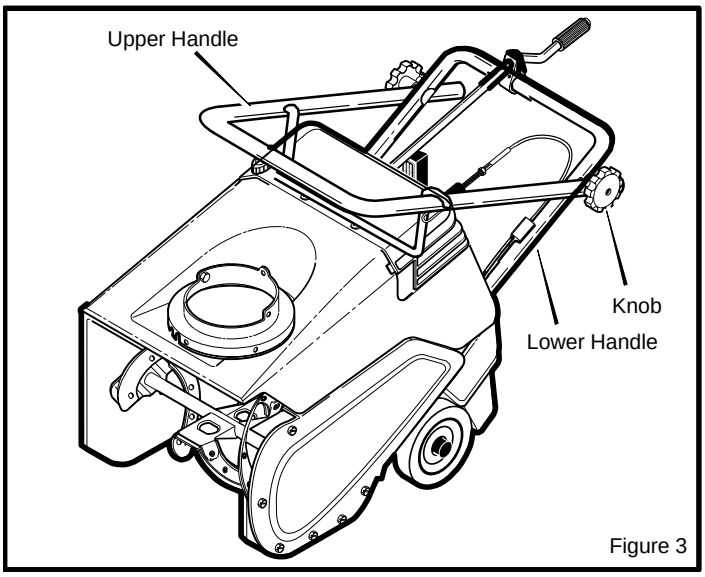


Figure 3

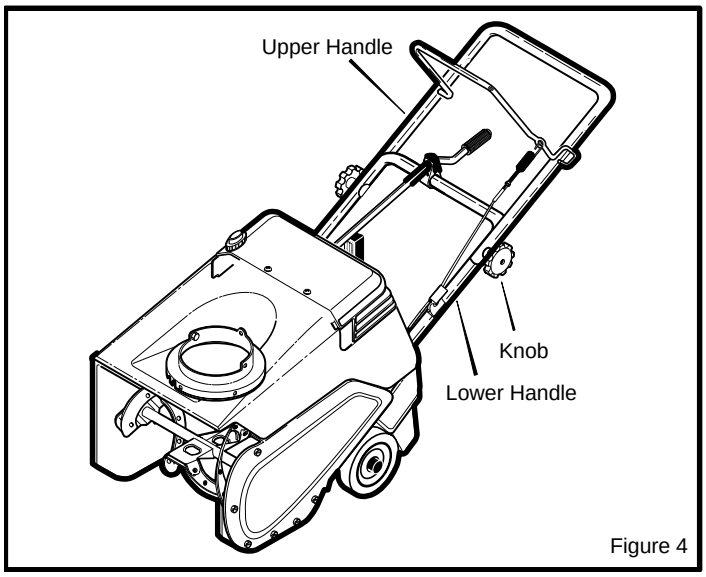


Figure 4

HOW TO INSTALL THE CHUTE

1. Remove the three bolts and **lock nuts** from the chute base (see Figure 5).
2. Install the **chute** with the bolts and **locknuts.** Make sure the **locknuts** are to the outside as shown.

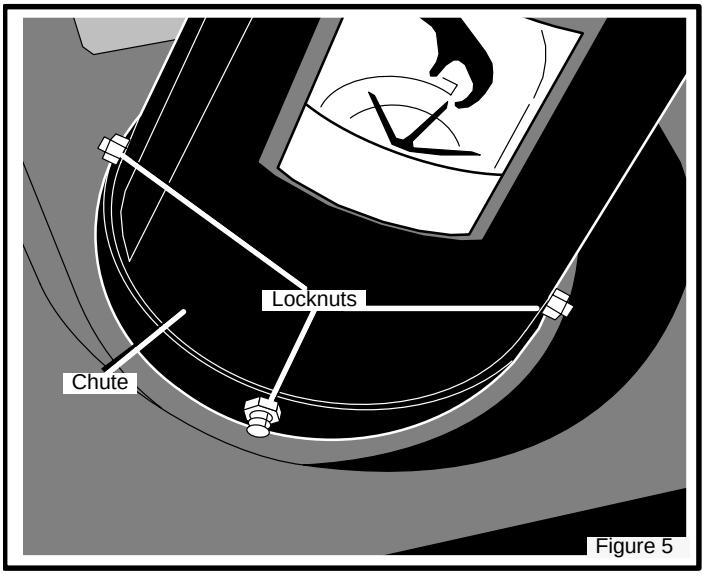


Figure 5

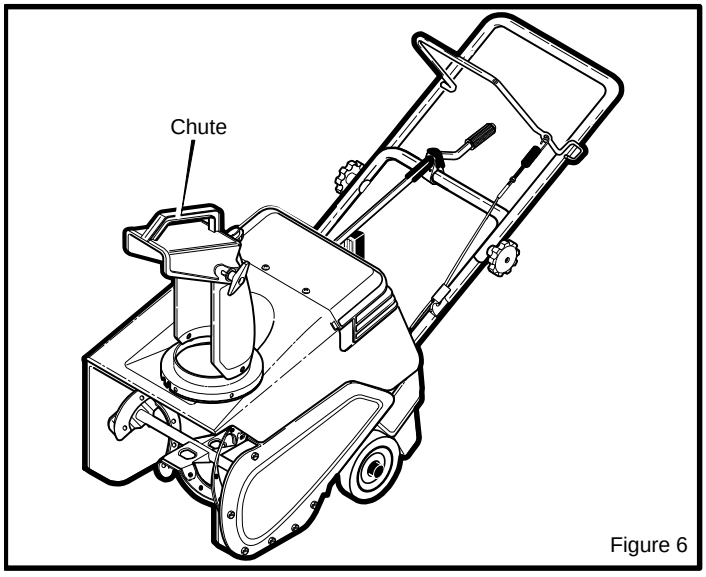


Figure 6

ASSEMBLY

CHECKLIST

Before you operate your new snowthrower, to ensure that you receive the best performance and satisfaction from this quality product, please review the following checklist:

- All assembly instructions have been completed.
- The discharge chute rotates freely.
- No remaining loose parts in carton.

While learning how to use your snow thrower, pay extra attention to the following important items:

- Make sure the fuel tank is filled with the correct mixture (50:1 ratio) of gasoline and oil.
- Become familiar with the location of all controls and understand their function.
- Before starting the engine, make sure all controls operate correctly.

OPERATION

KNOW YOUR SNOWTHROWER

READ THIS OWNER'S MANUAL AND SAFETY RULES BEFORE OPERATING YOUR SNOWTHROWER. Compare the illustrations with your SNOWTHROWER to familiarize yourself with the location of various controls and adjustments. Save this manual for future reference.

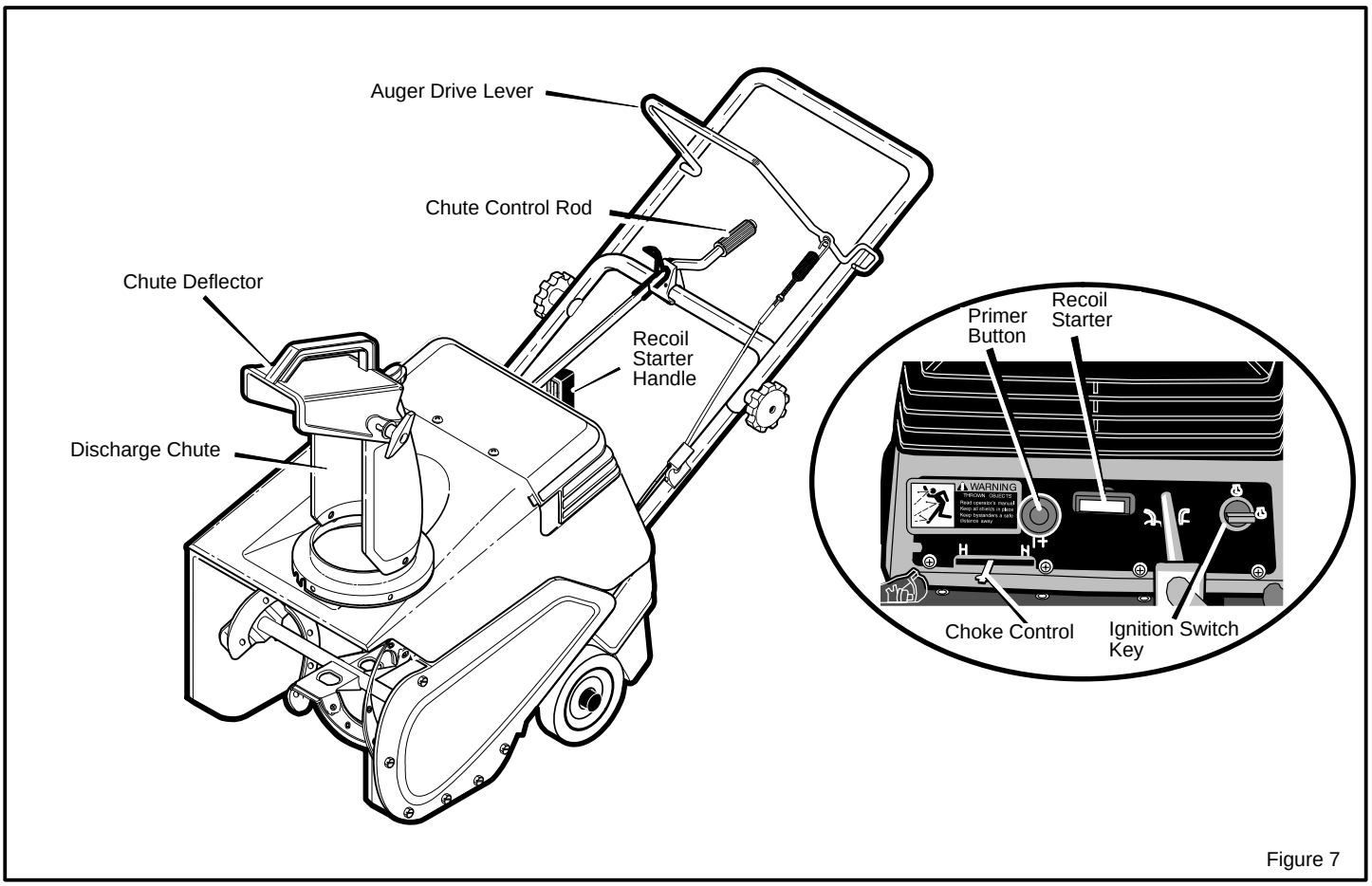


Figure 7

ENGINE AND SNOW THROWER OPERATING CONTROLS

The engine operating controls and their functions are as follows:

Auger Drive Lever - Starts and stops the auger.

Chute Control Rod - Changes the direction of snow throwing through the discharge chute.

Chute Deflector - Changes the distance the snow is thrown.

Discharge Chute - Changes the direction the snow is thrown.

Ignition Switch Key - Must be inserted and turned to the ON position to start the engine.

Recoil Starter Handle - Starts the engine manually.

Electric Starter Button - (Not shown) On electric start models, use to start the engine when using the 120V electric starter.

Choke Control - Used to start a cold engine.

Primer Button - Injects fuel directly into the carburetor manifold for fast starts in cold weather.

OPERATION

SNOWTHROWER OPERATION

The most effective use of the snowthrower will be established by experience, taking into consideration the terrain, wind conditions and building location which will determine the direction of the discharge chute.

NOTE: Do not discharge snow toward a building as hidden objects could be thrown with sufficient force to cause damage.

WARNING: Read Owner's Manual before operating machine. This machine can be dangerous if used carelessly.
Never operate the snowthrower without all guards, covers, and shields in place.
Never direct discharge toward windows or allow bystanders near machine while engine is running.
Stop the engine whenever leaving the operating position.
Disconnect spark plug before unclogging the impeller housing or the discharge chute and before making repairs or adjustments.
When leaving the machine, remove the ignition key.
To reduce the risk of fire, keep the machine clean and free from spilled gas, oil and debris.

HOW TO STOP THE SNOWTHROWER

7. To stop throwing snow, release the **auger drive lever**. (See Figure 9).

NOTE: If the snowthrower continues to slowly move forward, see "How To Adjust The Auger Control Cable" in the Maintenance Section.

8. To stop the engine, move the **ignition key** to the OFF position.

HOW TO CONTROL SNOW DISCHARGE

1. Turn the **chute control rod** to set the direction of the snow throwing. (See Figure 7)
2. Loosen the **wing knob** on the chute deflector and move the deflector to set the distance. Move the deflector (**Up**) for more distance, (**Down**) for less distance. Then tighten the **wing knob** (See Figure 8).

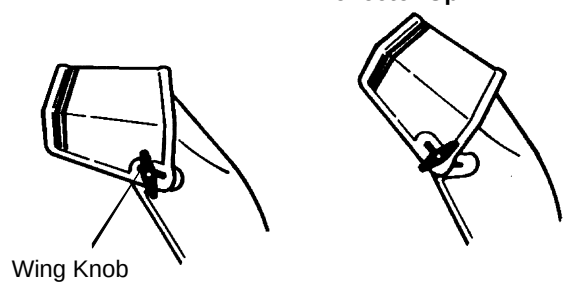


Figure 8

HOW TO THROW SNOW

1. Engage the **auger drive lever**. (See Figure 9).
2. To stop throwing snow, release the **auger drive lever**.

HOW TO MOVE FORWARD

1. Hold the **auger drive lever** against the **handle** (See Figure 9)**.** The auger will begin rotating.
2. To go forward, raise the **handle** to allow the **rubber auger blades** to contact the ground. Maintain a firm hold on the **handle** as the snowthrower starts to move forward. Guide the snowthrower by moving the **handle** either left or right. Do not attempt to push the snowthrower.
3. To stop, release the **auger drive lever**.

NOTE: If the auger continues to rotate, see "How To Adjust The Auger Control Cable" in the Maintenance section.

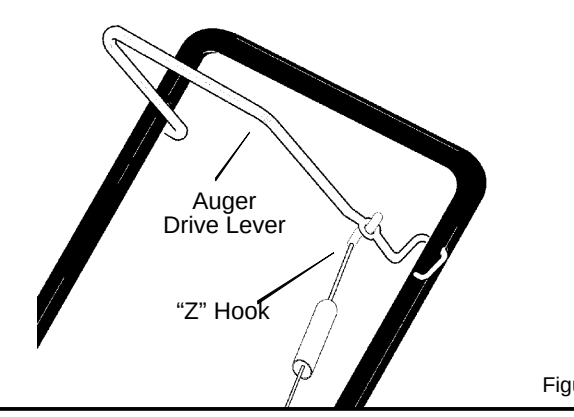


Figure 9

OPERATION

BEFORE STARTING THE ENGINE

WARNING: Experiences indicates that alcohol blended fuels (called gasohol or those using ethanol or methanol) can attract moisture which leads to separation and formation of acids during storage. Acidic gas can damage the fuel system of an engine while in storage.

NOTE: To avoid engine problems, the fuel system must be emptied before storage for 30 days or longer. Start the engine and let it run until the fuel lines and carburetor are empty. Use the carburetor bowl drain to empty residual gasoline from the float chamber. Use fresh fuel next season. See the Storage section in this manual for additional information.

Never use engine or carburetor cleaner products in the fuel tank or permanent damage can occur.

HOW TO MIX THE FUEL MIXTURE

The two cycle engine, used on this snow thrower, requires a mixture of gasoline and oil for lubrication of the bearings and other moving parts. The correct fuel mixture ratio is 50:1 (2.6 oz. oil per one gallon of gas - see the Fuel Mixture Chart). Gasoline and oil must be pre-mixed in a clean gasoline container. Always use fresh, clean, unleaded gasoline.

FUEL MIXTURE CHART (mixture 50:1)

U.S.		IMPERIAL		SI. (Metric)	
GAS	**OIL**	**GAS**	**OIL**	**GAS**	**OIL**
1 Gal.	**2.6 oz.**	**1 Gal.**	**3.1 oz.**	**4 liter**	**80 ML**

Mix gasoline and oil as follows:

1. Pour one (1) U.S. quart of fresh, clean, unleaded automotive gasoline into a one gallon size gasoline container.
2. Add 2.6 ounces of clean, high quality, two-cycle oil to the gasoline container.

   IMPORTANT: Do not use outboard motor oil or multi-viscosity oils,such as 10W-30 or 10W-40.
3. Install the fuel cap onto the gasoline container. Vigorously shake the gasoline container to mix the oil with the gasoline.
4. Add an additional three (3) U.S. quarts of gasoline to the gallon container. Again shake the gasoline container.

WARNING: Gasoline is flammable. Always use caution when handling or storing gasoline.
Do not fill fuel tank while snow thrower is running, when it is hot, or when snow thrower is in an enclosed area.
Keep away from open flame or an electrical spark and do not smoke while filling the fuel tank.
Never fill the tank completely. Fill the tank to within 1/4”-1/2” from the top to provide space for expansion of fuel.
Always fill fuel tank outdoors and use a funnel or spout to prevent spilling.
Make sure to wipe up any spilled fuel before stating the engine.
Store gasoline in a clean, approved container and keep the cap in place on the container.

Do not fill the fuel tank with gasoline that does not have oil mixed in it. Shake the gasoline container before each filling of the fuel tank.

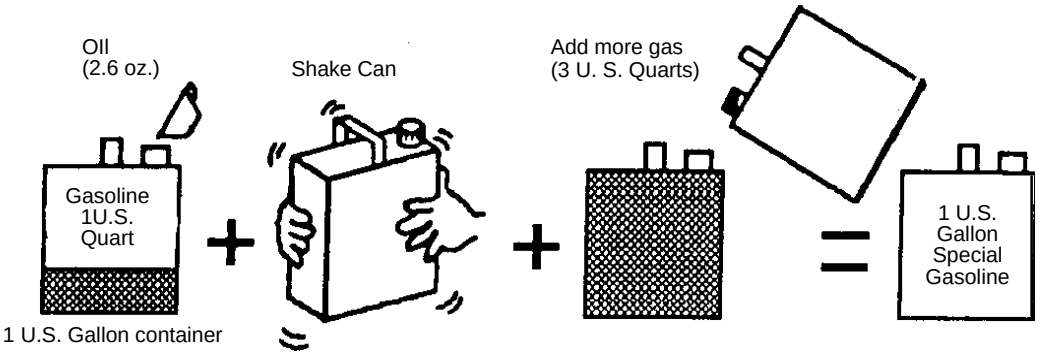


Figure 10

OPERATION

BEFORE STARTING THE ENGINE

1. Before you service or start the engine, familiarize yourself with the snow thrower. Be sure you understand the function and location of all controls.
2. Be sure that all fasteners are tight.
3. Before starting the engine, make sure all controls operate correctly.

HOW TO STOP THE ENGINE

To stop the engine, move the ignition key to the stop position.

HOW TO START THE ENGINE

The following starting instructions include directions for both ***Recoil Start*** and ***Electric Start*** engines. For models that are ***Recoil Start*** only, disregard the ***Electric Start*** information.

Electric Start models are equipped with a 120 volt AC electric starter and also a recoil starter. Before starting the engine, make certain that you have read the following information.

The starter is designed to operate on 120 volt A.C. household current. Carefully follow all instructions in the "How To Start The Engine" section. To connect a 120 volt A.C. power cord, always connect the power cord to the switch box on the engine first. Then, plug the other end into the receptacle. When disconnecting the power cord, always unplug the end from the receptacle first.

HOW TO START A COLD ENGINE

1. Fill the fuel tank with a fresh, clean fuel mixture. See "How To Mix The Fuel Mixture".
2. Move the choke control to FULL position.
3. Make sure the **auger drive lever** is in the disengaged (released) position.
4. Insert the **ignition key** and turn to the ON position.
5. Move the **choke control** to the full choke position.
6. ***(Electric Start)*** Connect the power cord to the **switch box** located on the engine.
7. ***(Electric Start)*** Plug the other end of the power cord into a 120 VOLT, A.C. receptacle. (See the WARNING in this section).
8. Push the **primer button** while covering the vent hole as follows: Remove finger from primer button between primes.

- Do not prime if temperature above 50° F (10° C).
- Push twice if temperature is 50° F (10° C) to 15°F (-10° C).
- Push four times if temperature is below 15° F (-10° C).
- Push five time if temperature is below 0° F (-18° C).

9. ***(Electric Start)*** Push on the **electric start button** until the engine starts. Do not crank for more than 10 seconds at a time. The electric starter is thermally protected. If the electric starter overheates, it will automatically stop and can only be restarted when it has cooled to a safe temperature. A wait of about 5 to 10 minutes is required to allow the electric starter to cool.
10. ***(Recoil Start)*** Rapidly pull the **recoil starter handle.** Do not allow the **recoil starter handle** to snap back. Slowly return the **recoil starter handle.**
11. If the engine does not start in 5 or 6 tries, See the "Trouble Shooting Chart" Instructions.
12. ***(Electric Start)*** When the engine starts, release the **electric start button.**
13. ***(Electric Start)*** First disconnect the power cord from the receptacle. Then, disconnect the power cord from the **switch box**.
14. As the engine warms up, move the **choke control** to 1/2 choke position. When the engine runs smoothly, move the **choke control** to the off position.

NOTE: Allow the engine to warm up for several minutes before blowing snow in temperatures below 0°F.

WARM START

If restarting a warm engine after a short shutdown, leave choke at "**OFF**" and do not push the primer button. If the engine fails to start, follow the Cold Start instructions.

WARNING: Never run engine indoors or in enclosed, poorly ventilated areas. Engine exhaust contains CARBON MONOXIDE, AN ODORLESS AND DEADLY GAS. Keep hands, feet, hair and loose clothing away from any moving parts on engine and snow thrower.
The temperature of muffler and nearby areas may exceed 150°F. Avoid these areas.
DO NOT allow children or young teenagers to operate or be near snow thrower while it is operating.

OPERATION

HOW TO REMOVE SNOW FROM THE AUGER HOUSING

WARNING: Do not attempt to remove snow or debris that may become lodged in auger housing without taking the following precautions.

1. Release the **auger drive lever**.
2. Remove the **ignition key**.
3. Disconnect the spark plug wire.
4. Do not place your hands in the **auger housing** or the **discharge chute**. Use a pry bar to remove any snow or debris.

SNOW THROWING TIPS

1. When the handle is raised, the auger blades will engage the ground and the snow thrower will move forward. When the auger drive lever is released, the auger blades will stop. If the blades do not stop, see “How To Adjust The Auger Control Cable” in the Service And Adjustment section.
2. Most efficient snow throwing is accomplished when the snow is removed immediately after if falls.
3. For complete snow removal, slightly overlap each previous path.
4. Whenever possible, discharge the snow down wind.
5. The distance the snow will be discharged can be adjusted by moving the discharge chute deflector. Raise the deflector for more distance or lower the deflector for less distance.
6. In windy conditions, lower the chute deflector to direct the discharged snow close to the ground where it is less likely to blow into unwanted areas.
7. For safety and to prevent damage to the snow thrower, keep the area to be cleared free of stones, toys and other foreign objects.
8. Do not use the auger propelling feature when clearing gravel or crushed rock driveways. Move the handle down to slightly raise the auger.
9. The forward speed of the snow thrower is dependent on the depth and weight of the snow. Experience will establish the most effective method of using the snow thrower under different conditions.
10. After each snow throwing job, allow the engine to run for a few minutes. The snow and accumulated ice will melt off the engine.
11. Clean the snow thrower after each use.
12. Remove ice, snow and debris from the entire snow thrower. Flush with water to remove all salt or other chemicals. Wipe snow thrower dry.

DRY AND AVERAGE SNOW

1. Snow up to eight inches deep can be removed rapidly and easily by walking at a moderate rate. For snow or drifts of a greater depth,slow your pace to allow the discharge chute to dispose of the snow as rapidly as the auger receives the snow.
2. Plan to have the snow discharged in the direction the wind is blowing.

WET PACKED SNOW

Move slowly into wet, packed snow. If the wet, packed snow causes the auger to slow down or the discharge chute begins to clog, back off and begin a series of short back and forth jabs into the snow. These short back and forth jabs, four to six inches, will “belch” the snow from the chute.

SNOW BANKS AND DRIFTS

In snow of greater depth than the unit, use the same “jabbing” technique described above. Turn the discharge chute away from the snow bank. More time will be required to remove snow of this type than level snow.

SERVICE RECOMMENDATIONS

SERVICE RECOMMENDATIONS									
	PROCEDURE	FIRST 2 HOUR	BEFORE EACH USE	OFTEN	EVERY 5 HOURS	EVERY 10 HOURS	EVERY 25 HOURS	BEGINNING EACH SEASON	BEFORE STORAGE
SNOWTHROWER	Tighten all screws and nuts	√		√				√	
	Lubricate Chute Control Flange	√							√
	Lubricate Auger Bail	√							√
	Check Auger Drive Cable Adjustment (See Cable Adjustment)							√	
	Check Drive Belt								√

The warranty on this snowthrower does not cover items that have been subjected to operator abuse or negligence. To receive full value from the warranty, operator must maintain snowthrower as instructed in this manual. The following **Service Recommendations** are supplied to assist operator to properly maintain snow thrower. This is a check list only. Adjustment referred to will be found in Adjustments/Repairs section of this manual.

AFTER EACH USE

1. Check for any loose or damaged parts.
2. Tighten any loose fasteners.
3. Check and maintain the auger.
4. After each use, remove all snow and slush off of the snowthrower to prevent freezing of auger or controls.
5. Check controls to make sure they are functioning properly.
6. If any parts are worn or damaged, replace immediately.

LUBRICATION

Before Storage

1. Lubricate the **chute control flange.** Apply a clinging type of grease such as Lubriplate (see Figure 11).
2. Apply oil to the **pivot point** on each side of the **auger bail** (see Figure 11).
3. Wipe off the excess oil.

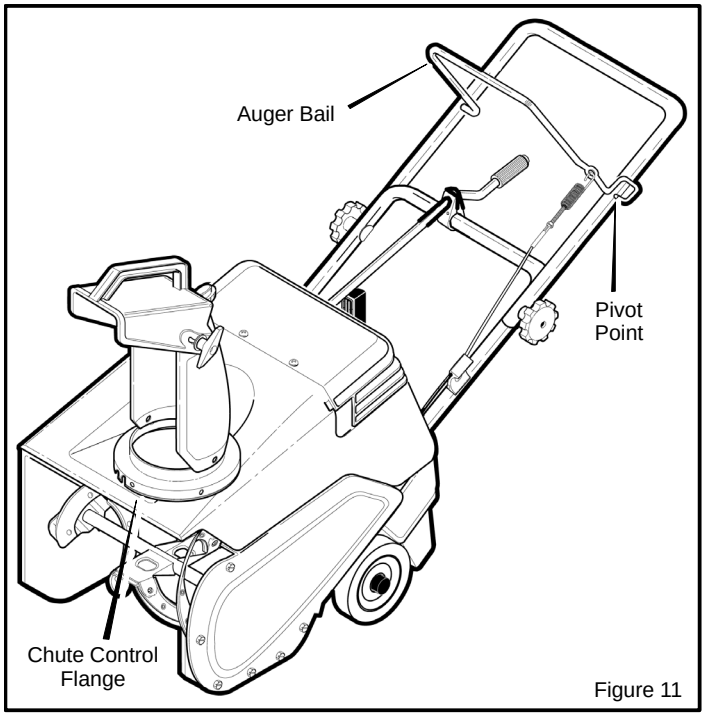


Figure 11

HOW TO LUBRICATE THE IDLER ARM

CAUTION: DO NOT get oil on the belt or pulleys.

1. Remove the screws from the belt cover. Remove the belt cover.
2. Apply a drop of oil to the **idler arm** at point **B** (see Figure 12).
3. Pivot the auger bail up and down several times.
4. Wipe off the excess oil.
5. Install the cover.

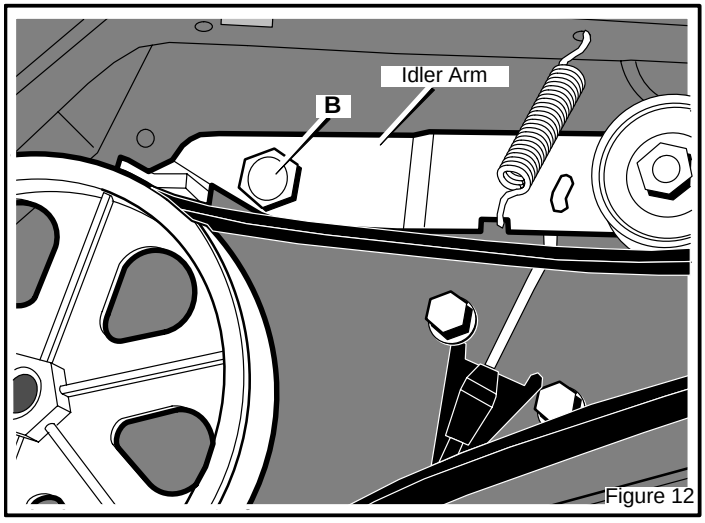


Figure 12

HOW TO ADJUST THE BELT TENSION

IMPORTANT: When you release the auger bail, the auger must stop rotating. If the auger does not stop, adjust the belt tension as follows:

1. Disconnect the spark plug wire from the spark plug.
2. Remove the belt cover.
3. Loosen the **idler pulley nut** (see Figure 14).
4. Move the **idler pulley** to the bottom of the idler arm slot. If the **idler pulley** is already in the bottom position, replace the **auger belt.** See How To Replace The Auger Belt in the Maintenance section.
5. Tighten the **idler pulley nut.**
6. Install the belt cover.

HOW TO REPLACE THE AUGER BELT

1. Disconnect the spark plug wire from the spark plug.
2. Remove the belt cover.
3. Remove the **belt guide** (see Figure 14)**.**
4. Remove the **auger belt** from the **engine drive pulley.**
5. Push down the **idler arm** to move the **brake** away the **auger drive pulley.** Remove the **auger belt** from the **auger drive pulley**.
6. Loosen the **idler pulley nut.** Move the idler pulley to the top of the idler arm slot. Tighten the **idler pulley nut**.
7. Install a new **auger belt**.
8. Install the **belt guide.** Make sure the fasteners that secure the **belt guide** are tight.
9. Check the operation. When you release the **auger bail,** the auger must stop turning. When you engage the **auger bail,** there MUST be clearance between the **brake arm** and the **auger drive pulley**.
10. When you release the **auger bail,** the auger must stop rotating. Make sure the **brake** contacts the **auger drive pulley** (Figure 14) and that the **auger cable spring** (Figure 13) has slack (no tension). If not, check the cable spring adjustment as follows:
11. Remove the boot from the **auger cable spring** as follows:
    - Disconnect the end of the **idler spring** from the **idler arm** (see Figure 14)**.**
    - Remove the **auger belt** from the **idler pulley.**
    - Remove the end of the **auger cable spring** from the **auger bail** (see Figure 13).
    - Remove the boot from the **auger cable spring.**
    - Attach the end of the **auger cable spring** to the **auger bail.**
12. To adjust the **auger cable spring**:
    - Install the **auger belt** to the **idler pulley** (see Figure 14).
    - Attach the **idler spring** to the **idler arm.**
    - Loosen the **jam nut** (see Figure 13).
    - Turn the **adjuster** until the **auger cable** is slightly slack.
    - Tighten the **jam nut.**
13. Remove the **idler spring** from the **idler arm** (see Figure 14)**.** Remove the **auger belt** from the **idler pulley**. Install the boot to the **auger cable spring**.
14. Install the **auger belt, idler spring**, and belt cover.

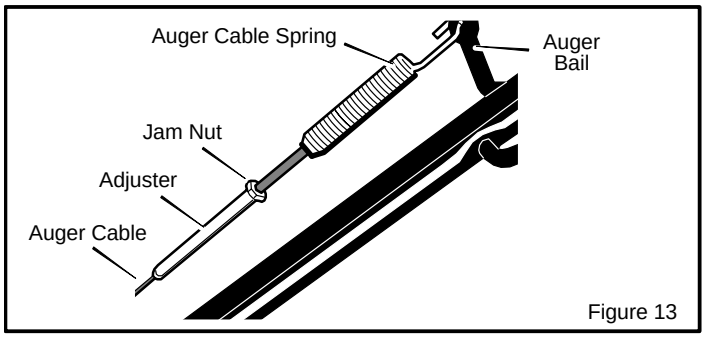


Figure 13

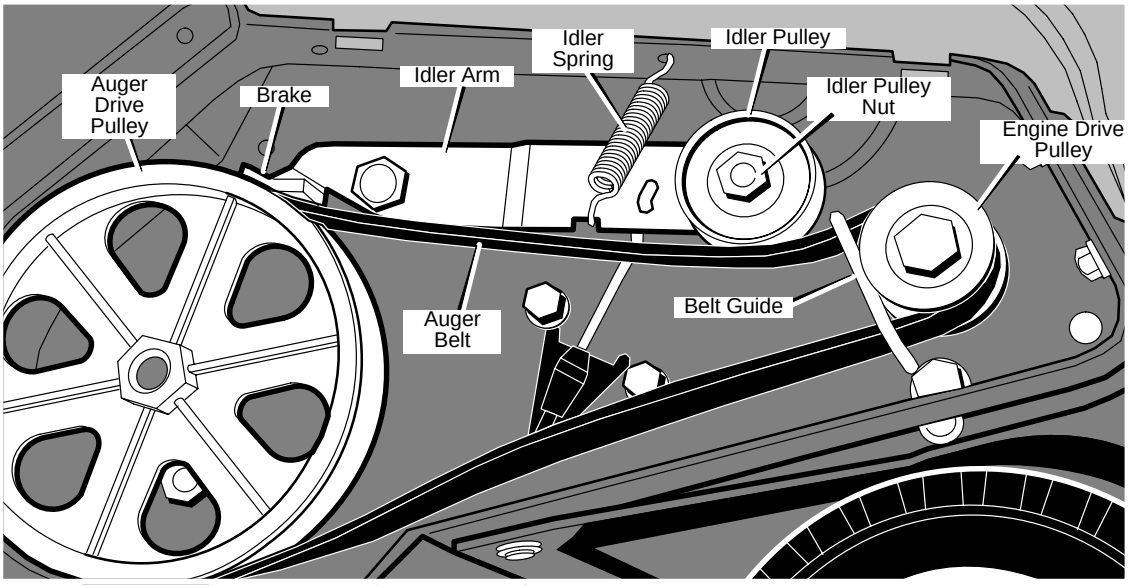


Figure 14

HOW TO REPLACE THE SCRAPER BLADE

1. Remove the fasteners that secure the **scraper blade** (Figure 15).
2. Install a new **scraper blade** and secure with the fasteners removed in step 1.

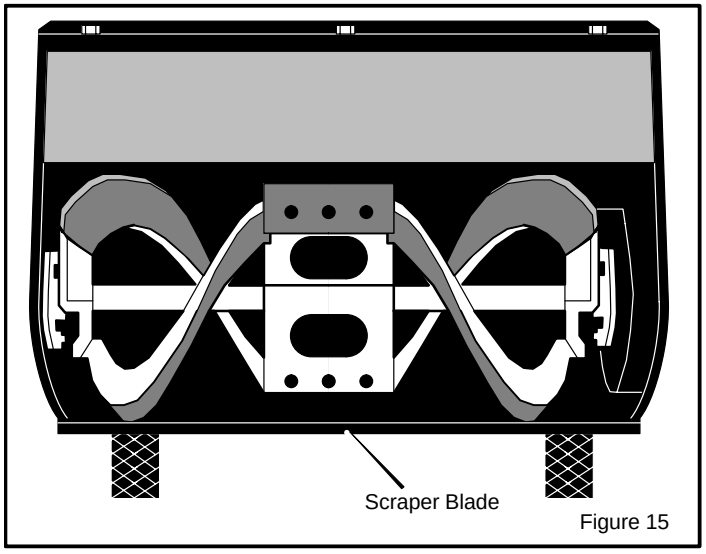


Figure 15

HOW TO FREE THE AUGER CABLE

IMPORTANT: If the auger cable will not move when you ENGAGE the bail, the auger cable could be frozen inside the conduit. DO NOT pull on the auger cable. Instead, thaw the conduit and lubricate the auger cable.

1. Thaw the **conduit** so the auger cable moves freely.
2. Work grease into the opening on the top of the **conduit** where the auger cable enters.

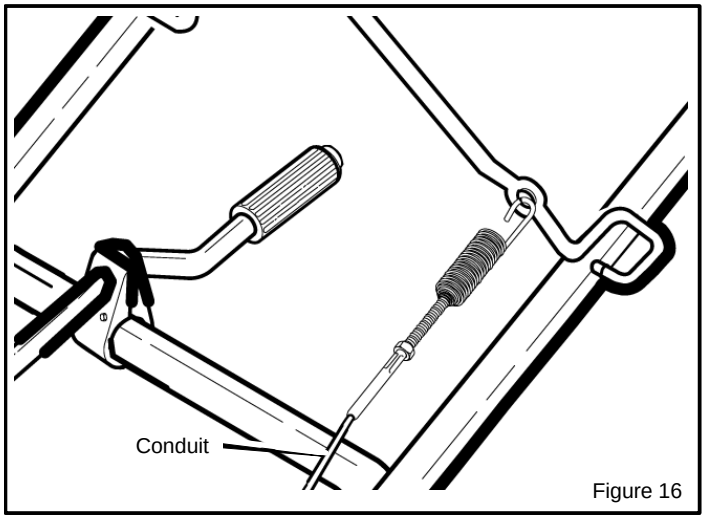


Figure 16

MAINTENANCE

WARNING: To prevent accidental starting when making any adjustments or repairs, always disconnect the spark plug wire and place it where it cannot make contact with the spark plug .

HOW TO ADJUST THE CHUTE CRANK

If the chute crank will not rotate fully to the left or right, adjust as follows.

1. Remove the top cover. See “How To Remove The Top Cover”.
2. Loosen **the nuts.**
3. Move the **crank adjusting bracket** to allow **1/8 inch (3mm) clearance** between the notch in the **flange** and the outer diameter of the **worm gear.**
4. Tighten the **nuts.**

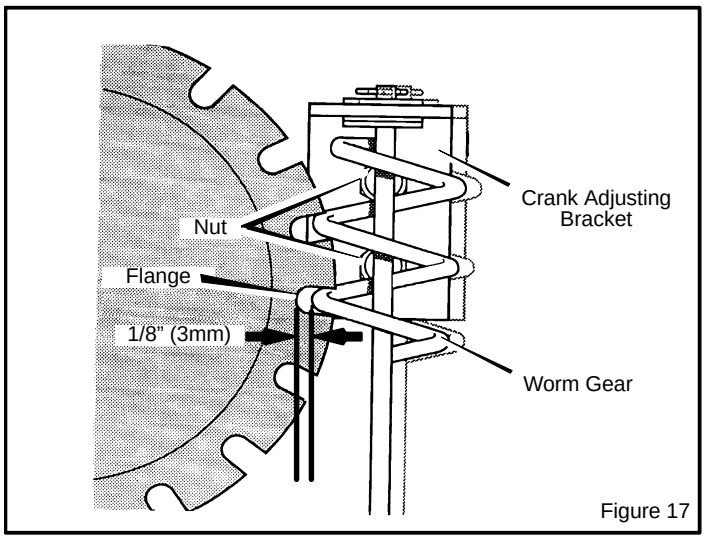


Figure 17

HOW TO ADJUST THE AUGER CONTROL CABLE

The auger control cable is adjusted at the factory. During normal use, the auger control cable can become stretched and the auger drive lever will not properly engage or disengage the auger.

1. Remove the **“Z” hook** from the **auger drive lever** (Figure 18)**.**
2. Slide the **cable boot** off the **cable adjustment bracket** (Figure 19).
3. Push the bottom of the **auger control cable** through the **cable adjustment bracket** until the **“Z” hook** can be removed.
4. Remove the **“Z” hook** from the **cable adjustment bracket.** Move the **“Z” hook** down to the next adjustment hole.
5. Pull the **auger control cable** up through the **cable adjustment bracket.**
6. Put the **cable boot** over the **cable adjustment bracket.**
7. Install the **“Z” hook** to the **auger drive lever.**
8. To check the adjustment, start the snow thrower. Make sure the auger does not rotate when the auger drive lever is released.

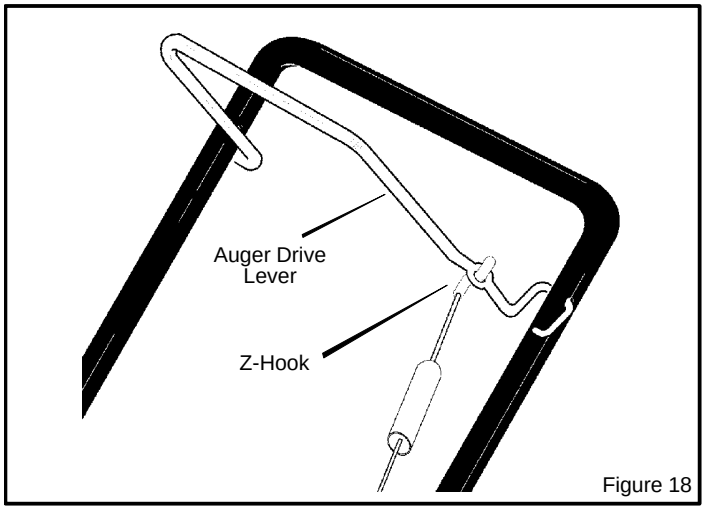


Figure 18

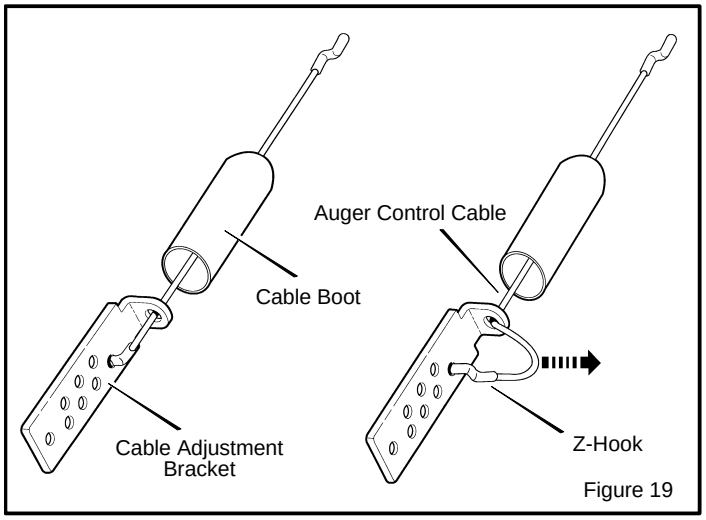


Figure 19

HOW TO REPLACE THE DRIVE BELT

The drive belt is of special construction and must be replaced with original factory replacement belt available from your nearest authorized service center.

1. Remove the belt cover. See “How To Remove The Belt Cover”.

2. Remove the **drive belt** from the **idler pulley.** (See Figure 20 and Figure 21)

3. Remove the **drive belt** from the **engine pulley.** Be careful, not to bend the belt guides.

4. Remove the **drive belt** from the **auger pulley.** (See Figure 21)

5. Remove the old **drive belt.**

6. To install the new **drive belt,** reverse the above steps.

7. Make sure the **drive belt** is seated properly on the pulleys.

   NOTE: When the auger control lever is engaged, the belt guides must be 1/16” from the drive belt . (See Figure 22)

8. Install belt cover. See “How To Remove The Belt Cover”.

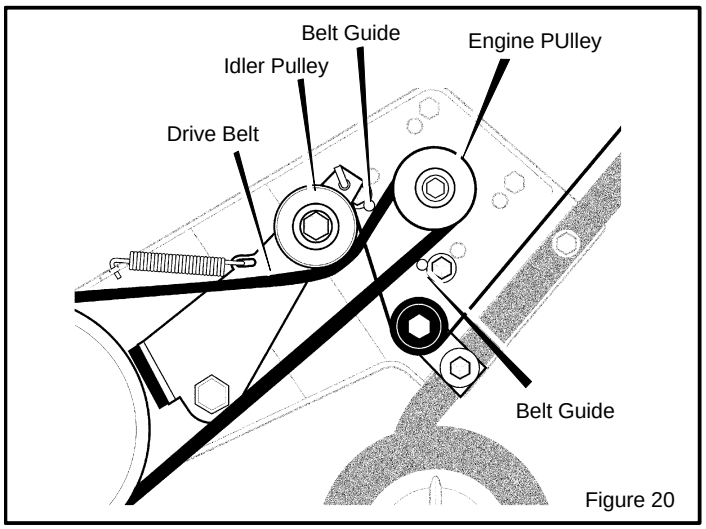


Figure 20

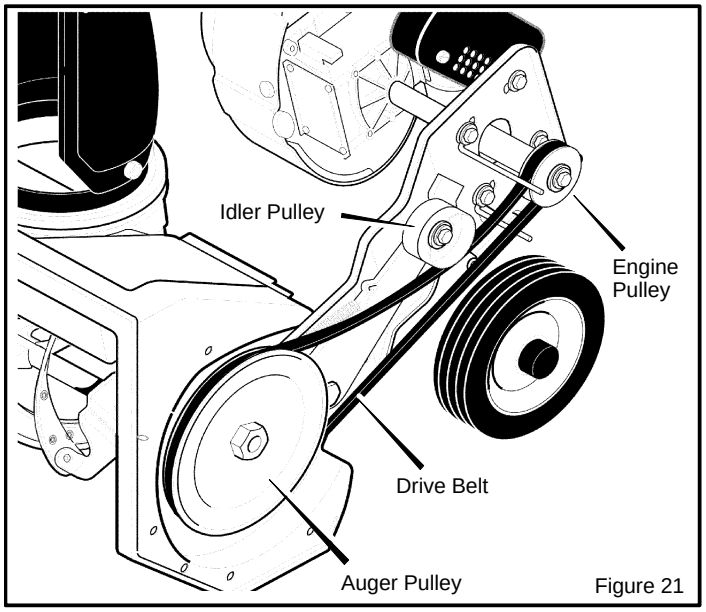


Figure 21

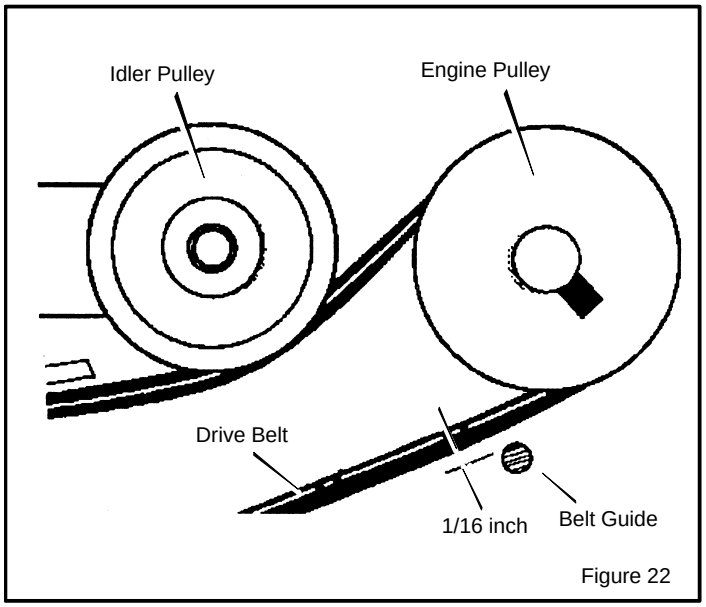


Figure 22

HOW TO REPLACE THE AUGER

1. Remove the belt cover. See “How To Remove The Belt Cover”.
2. Remove the drive belt. See “How To Replace The Drive Belt”.
3. Remove the **auger pulley** from the auger shaft (threads are left hand; turn clockwise to remove). (See Figure 23).
4. To keep the **auger** from rotating, set a 2”x4” piece of **wood** on the center **paddle** to secure **auger**.
5. Remove the fasteners from the **bearing assembly**. Remove the **bearing assembly** from the **auger housing.**
6. Slide the **auger** out of the bearing assembly on the right side of the snow thrower.
7. Tip the **auger** enough to allow the **auger** to slide out of the **auger housing.**
8. To install **auger,** reverse the above steps.

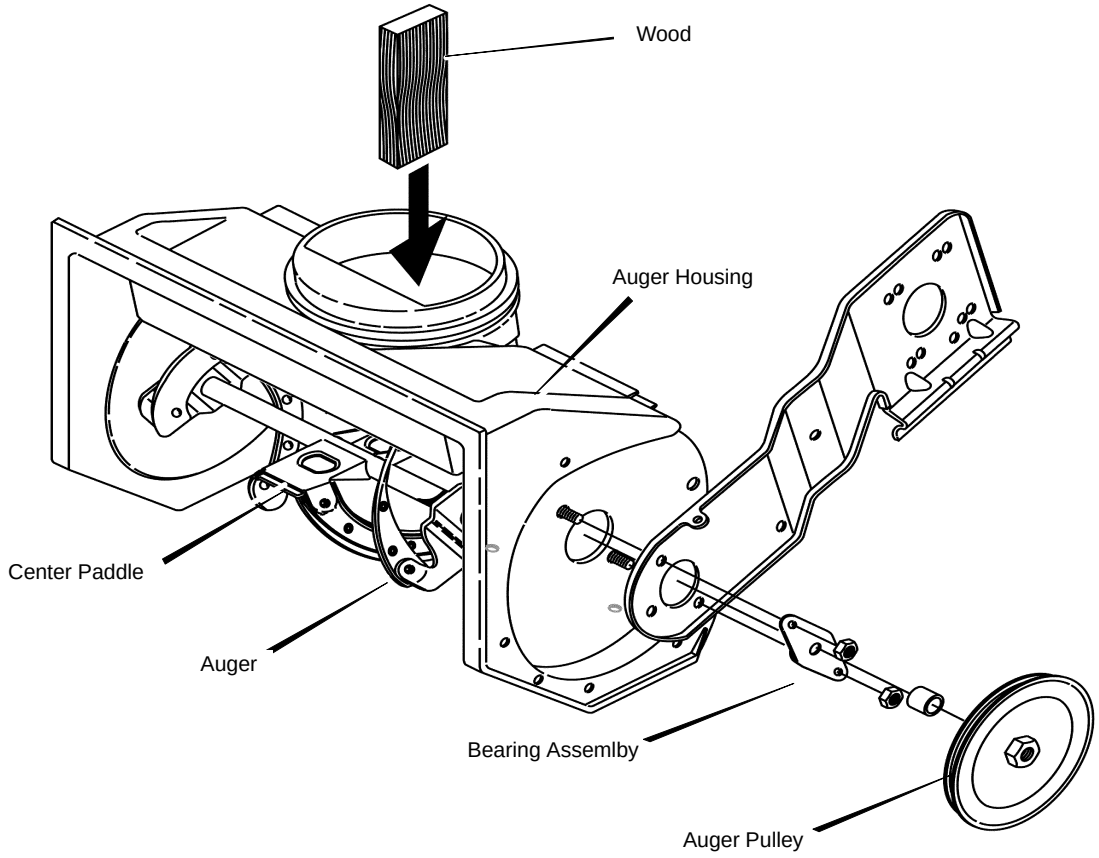


Figure 23

TO ADJUST THE CARBURETOR

The carburetor is not adjustable. Engine performance should not be affected at altitudes up to 7,000 feet. For operation at higher elevations, contact your nearest authorized service center.

IMPORTANT: Never tamper with the engine governor, which is factory set for proper engine speed. Over-speeding the engine above the factory high speed setting can be dangerous. If the engine-governed high speed needs an adjustment, contact an authorized service center. They have the proper equipment and experience to make any necessary adjustments.

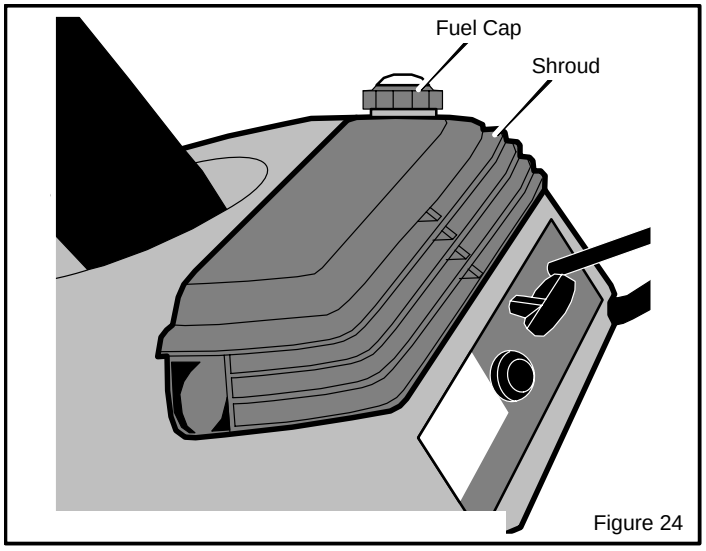


Figure 24

TO ADJUST OR REPLACE THE SPARK PLUG

Check the **spark plug** every twenty-five (**25**) hours. Replace the **spark plug** if the electrodes are pitted or burned or if the porcelain is cracked.

The spark plug is housed in the engine compartment under the top cover and cannot be seen under normal conditions.

WARNING: STOP the engine. Wait for it to cool before removal of spark plug.

CAUTION: DO NOT clean the plug with abrasives.

1. Remove the **fuel cap** (see Figure 24).
2. Remove the screws from the **shroud.** Remove the **shroud.** Install the **fuel cap.**
3. Disconnect the **spark plug wire** (see Figure 25).
4. Clean the area around the **spark plug** base to prevent dirt from entering the engine when the **spark plug** is removed.
5. Remove the **spark plug**.
6. Check the **spark plug**. If the **spark plug** is cracked, fouled or dirty, it must be replaced .
7. Set the gap between the electrodes of the new **spark plug** at 0.030 inch (Figure 26).
8. Install the **spark plug** in the cylinder head and firmly tighten. Recommended torque is 18 to 20 foot pounds. Attach the **spark plug wire.**
9. Remove the **fuel cap** and install the **shroud** (see Figure 24).
10. Install the **fuel cap.**

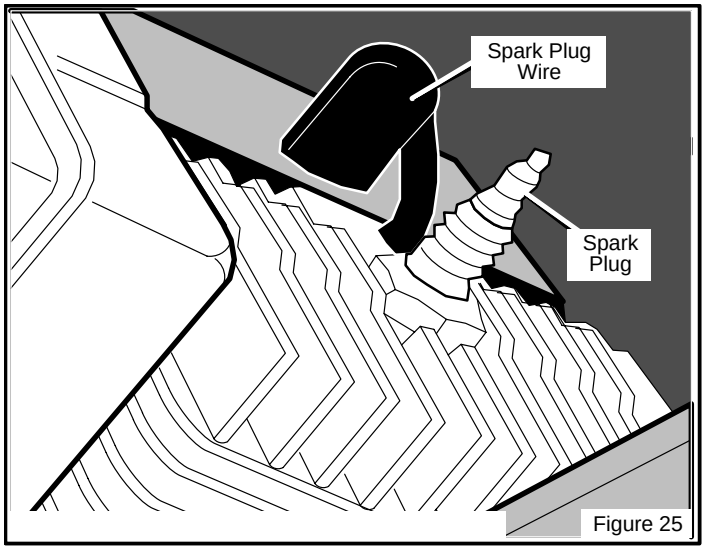


Figure 25

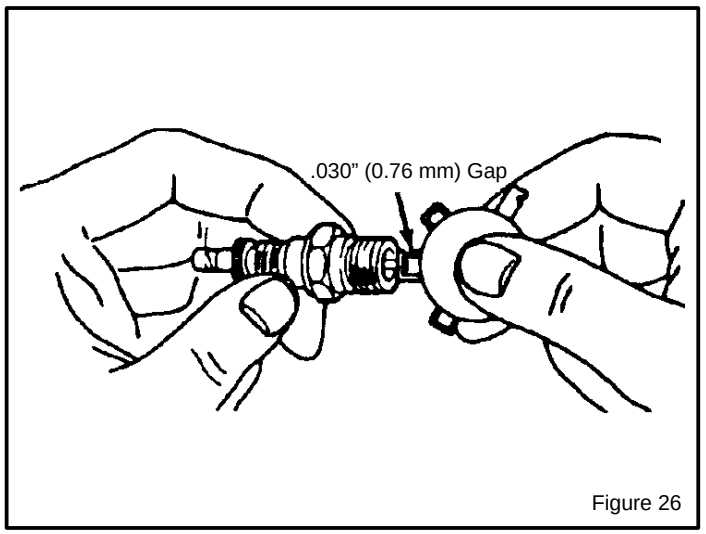


Figure 26

STORAGE

OFF SEASON STORAGE

WARNING: Never store the engine, with fuel in the tank, indoors or in a poor ventilated enclosure where fuel fumes could reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer, etc.
Handle gasoline carefully. It is highly flammable and careless use could result In serious fire damage to your person and /or property.
Drain fuel into approved containers outdoors, away from open flame.

If the snowthrower is to be stored for thirty (30) days or more at the end of the snow season, the following steps are recommended to prepare your snowthrower for storage.

NOTE: Gasoline must be removed or treated to prevent gum deposits from forming in the tank, filter, hose, and carburetor during storage.

1. To remove gasoline, run engine until tank is empty and engine stops.

If you do not want to remove the gasoline, add fuel stabilizer to any gasoline left in the tank to minimize gum deposits and acids. If the tank is almost empty, mix stabilizer with fresh gasoline in a separate container and add some to the tank. ALWAYS FOLLOW INSTRUCTIONS ON STABILIZER CONTAINER. THEN RUN ENGINE AT LEAST 10 MINUTES AFTER STABILIZER IS ADDED TO ALLOW MIXTURE TO REACH CARBURETOR. STORE SNOWTHROWER IN SAFE PLACE.

2. Lubricating the piston/cylinder area. This can be done by first removing the spark plug and squirting clean engine oil into the spark plug hole. Then cover the spark plug hole with a rag to absorb oil spray. Next, rotate the engine by pulling the starter two or three times. Finally, reinstall spark plug and attach spark plug wire.
3. Thoroughly clean the snowthrower.
4. Lubricate all lubrication points (see “Lubrication“ in the Service Recommendations section).
5. Insure that all nuts, bolts, and screws are securely fastened. Inspect all visible moving parts for damage, breakage, and wear. Replace if necessary.
6. Touch up all rusted or chipped paint surfaces; sand lightly before painting.
7. Cover the bare metal parts of the blower housing and auger with rust preventative.
8. If possible, store your snowthrower indoors and cover it to give protection from dust and dirt.
9. On models with folding handles, loosen the knobs that secure the upper handle. Rotate the upper handle back.
10. If the machine must be stored outdoors, block up the snowthrower and insure the entire machine is off the ground. Cover the snowthrower with a heavy tarpaulin.

REMOVING THE SNOWTHROWER FROM STORAGE

When removing the snowthrower from storage, follow the steps below.

1. Put the upper handle in the operating position, tighten the knobs that secure the upper handle.
2. Fill the fuel tank with a fresh fuel-oil mixture. See “How to Mix The Fuel Mixture” in the Operation section.
3. Lubricate the auger bail and idler arm.
4. Check the spark plug. Make sure the gap is correct. If the spark plug is worn or damaged, replace before using.
5. Make sure all fasteners are tight.
6. Make sure all guards, shields, and covers are in place.
7. Make sure all adjustments are correct.

TROUBLE SHOOTING CHART

PROBLEM	LOOK FOR	REMEDY
Difficult starting	Defective spark plug.	Replace defective spark plug.
Engine runs erratically	Blocked fuel line.	Clean fuel line.
	Empty gas tank.	Check fuel supply,
	Stale gasoline.	Add fresh gasoline.
	Water or dirt in fuel system.	Remove carburetor bowl to drain fuel tank. Refill with fresh fuel. **CAUTION: Do not remove carburetor bowl when the engine is hot.**
Engine stalls	Unit running on CHOKE.	Set choke lever to RUN position.
Loss of power	Gas cap vent hole is plugged.	Remove ice and snow from cap. Be sure vent hole is clear.
Excessive vibration	Loose parts.	Stop engine immediately and remove spark plug wire. Tighten all bolts and make all necessary repairs. If vibration continues, have the unit serviced by a competent repairman.
Unit fails to propel itself	Drive belt loose or damaged.	Replace drive belt. Refer to **Drive Belt Replacement** in the **Maintenance** section of this manual.
	Incorrect adjustment of traction drive cable.	Adjust traction drive cable. Refer to **Cable Adjustment** in the **Maintenance** section of this manual.
Unit fails to discharge snow	Auger drive belt loose or damaged.	Replace or adjust auger drive belt. Refer to **Drive Belt Replacement** and **Drive Belt Adjustment** in the **Maintenance** section of this manual.
	Auger control cable not adjusted correctly.	Adjust auger control cable. Refer to **Cable Adjustment** in the **Maintenance** section of this manual.
	Discharge chute clogged.	Stop engine immediately and disconnect spark plug wire. Refer to the first **Warning** in **Snowthrower Operation** in the **Operation** section of this manual. Clean discharge chute and inside of auger housing.
	Foreign object lodged in auger.	Stop engine immediately and disconnect spark plug wire. Remove object from auger housing.

Identifying Your Snowthrower

Your new snowthrower has two (2) identifying numbers: (1) unit model number: (2) unit serial number. The two preceding numbers are required to insure that the proper replacement parts are obtained when required. If you have any questions concerning parts, service, or technical data, contact your nearest John Deere/Frontier dealer.

For complete warranty information refer to the warranty in the Owner's Information section of this manual.

NOTES

REPLACEMENT PARTS

WE RECOMMEND JOHN DEERE/FRONTIER quality parts and lubricants available at your John Deere/Frontier dealer.

PART NUMBERS MAY CHANGE. When you order replacement parts, use the part numbers listed below and on the following pages. If a part number changes, your John Deere/Frontier dealer will have the latest part number.

WHEN YOU ORDER PARTS, your John Deere/Frontier dealer must have your snowthrower model and serial number and your engine model number. This is the model and serial number that you recorded in the “Owner’s Information” section of this Owner’s Manual.

QUICK REFERENCE PART NUMBERS

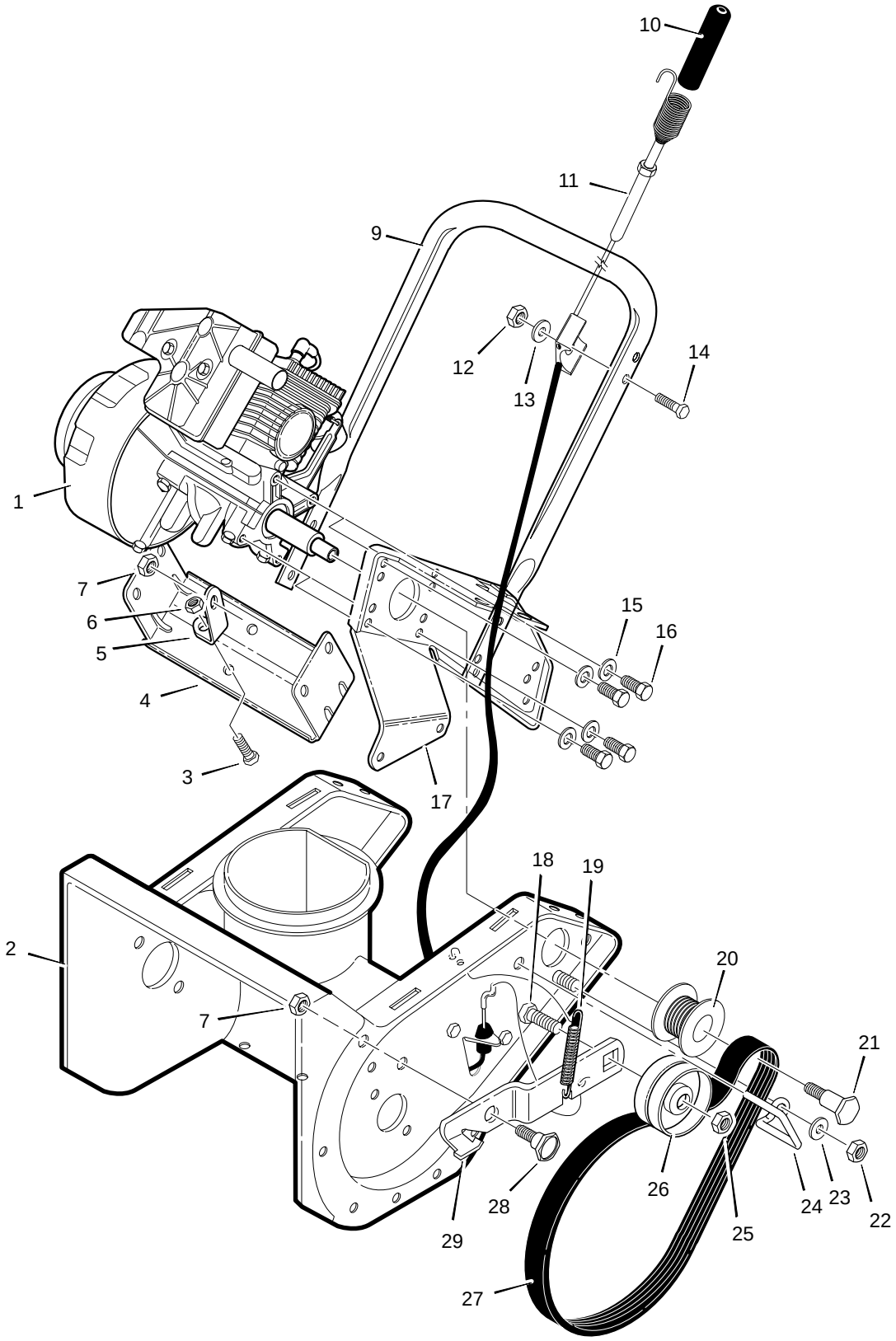
The following is a list of replacement parts that you may need for routine service and maintenance. If you do not see the replacement part you need in the following chart, then check the full list of replacement part illustrations following this page.

ITEM	PART NUMBER *
Belt	MT37x130
Scraper Blade	MT302418
Spark Plug	Champion RCJ8Y

*** Part Numbers are subject to change without notice.**

FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

ENGINE ASSEMBLY



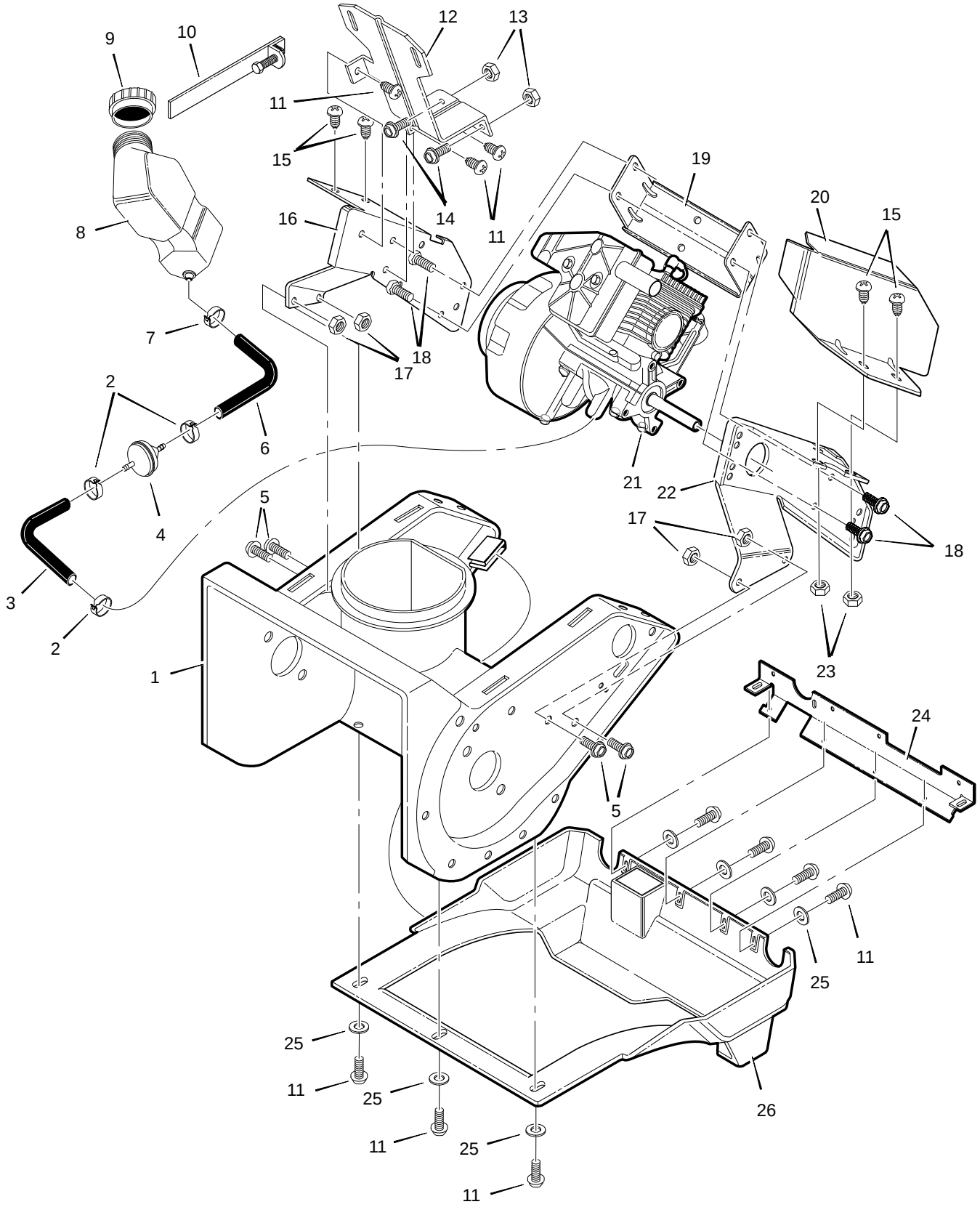
FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

ENGINE ASSEMBLY

Key No.	Part No.	Description
1	MT760632 MT760631	ENGINE, RECOIL START ENGINE, ELECTRIC START
2	MT340381E701	AUGER HOUSING, 21”
3	MT313780	SCREW, .31-18x .5
4	MT301419E701	SUPPORT, FRAME
5	MT301415E701	SUPPORT, ENGINE
6	MT71391	NUT.31-18 HEX
7	MT71391	NUT .31-18 HEX
9	MT314135	HANDLE, UPPER
10	MT314142	COVER, CABLE SPRING
11	MT316001	CABLE, DRIVE
12	MT73826	LOCKNUT .25-20 HEX
13	MT71067	WASHER .286-0.62-.07
14	MT70971	SCREW .25-20x1.50
15	MT71060	WASHER .318-0.56-.05
16	MT313676	SCREW, .31-18x .63
17	MT301421	PLATE, REAR
18	MT45892	BOLT, CARRIAGE .38-16x1.50
19	MT339017	SPRING, IDLER BRAKE
20	MT333784	PULLEY, 4.5 HP
21	MT333805	BOLT, SHOULDER .625x.280
22	MT71391	NUT.31-18 HEX
23	MT120386	WASHER, FLAT .312X .73X.065
24	MT340428	GUIDE, BELT
25	MT590	JAM NUT.38-16 HEX
26	MT48924	PULLEY, IDLER
27	MT37x130	BELT, POLY-V 10 RIB 35.14
28	MT333594	BOLT, SHOULDER
29	MT339415	BRACKET, IDLER ARM
--	MTF-031039C	OWNER’S MANUAL

FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

FRAME ASSEMBLY



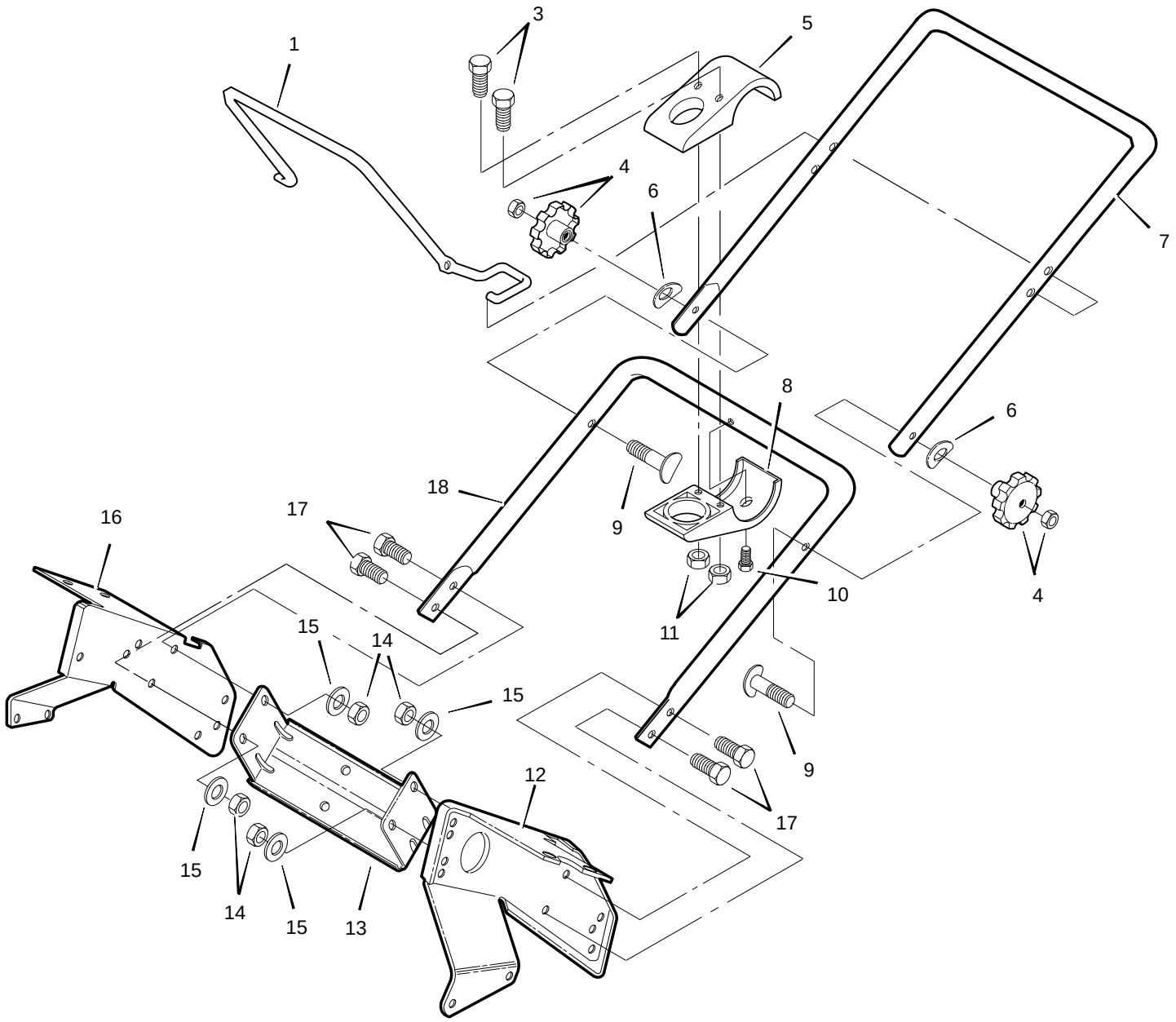
FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

FRAME ASSEMBLY

Key No.	Part No.	Description
1	MT340381E701	AUGER HOUSING 21”
2	MT323387	CLAMP, TUBING
3	MT323395	TUBING, FUEL
4	MT56679	FILTER, FUEL
5	MT313780	SCREW .31-18x.50
6	MT323363	TUBING, FUEL
7	MT47345	CLAMP, TUBING
8	MT326142	FUEL TANK
9	MT327018	CAP, FUEL
10	MT311671	CLAMP, WORM DR
11	MT309814	SCREW 10-24x.62
12	MT308677	BRACKET, FUEL TANK
13	MT997316	NUT, LOCK 10-24
14	MT274707	SCREW 10-24x.50
15	MT318139	SCREW .25-20x.62
16	MT301420E701	PLATE, REAR MT RH
17	MT71391	NUT, LOCK .31-18
18	MT313676	SCREW .31-18x.75
19	MT301419E701	FRAME SUPPORT
20	MT311738E701	HEAT SHIELD
21	MT760631	ENGINE w/ELECTRIC START
22	MT301421E701	PLATE, REAR MT LH
23	MT302635	NUT, LOCK .25-20
24	MT303041	WASHER, FLAT
25	MT590	NUT.38-16 HEX JAM CTRLK
26	MT305869	BOTTOM SHROUD

FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

HANDLE ASSEMBLY

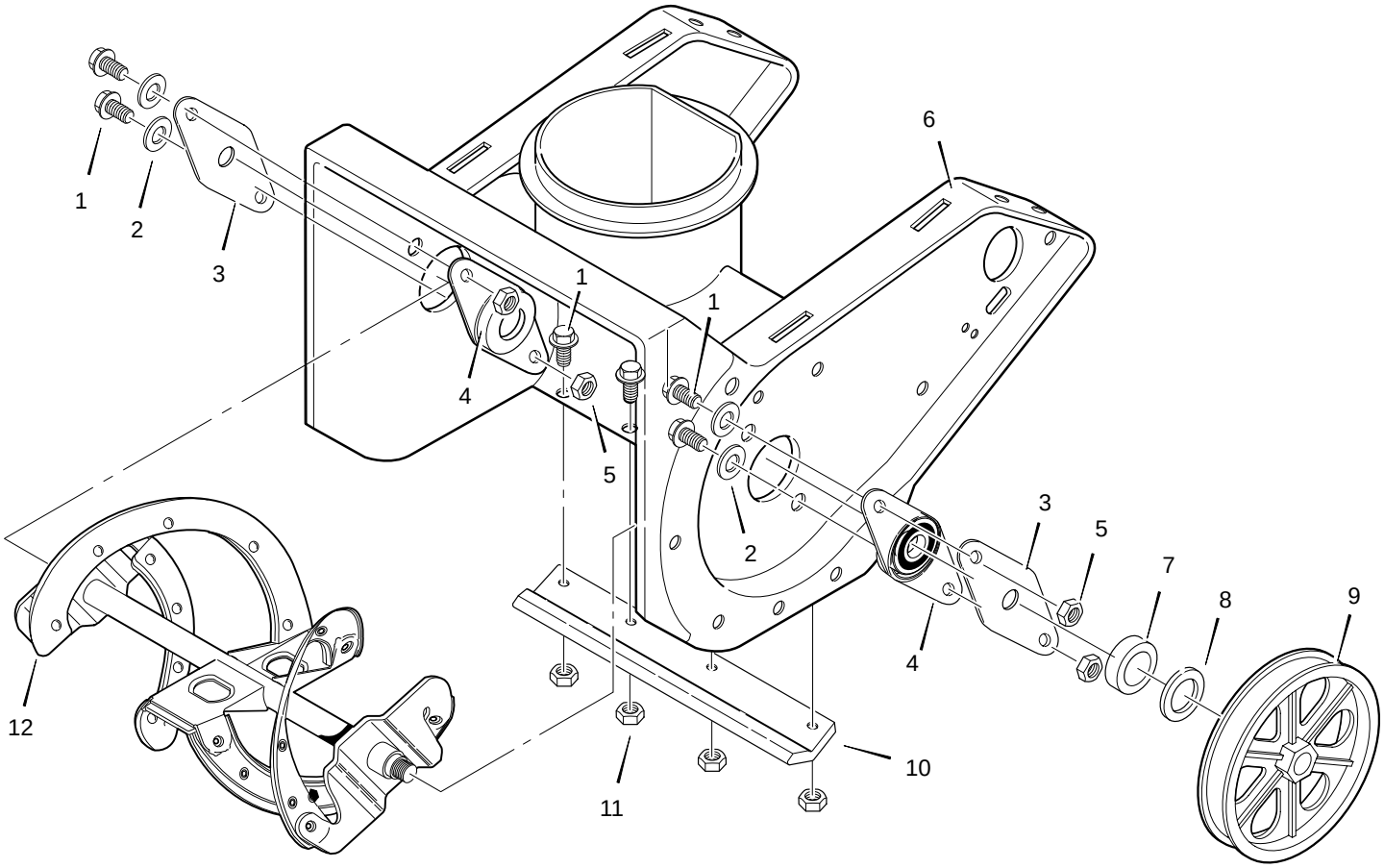


Key No.	Part No.	Description
1	MT307747	DRIVEBAR
3	MT309815	SCREW 10-24x1.00
4	MT32935	KNOB
5	MT308716	BRACKET, UPPER CRANK
6	MT311936	WASHER, FORMED
7	MT314135	HANDLE, UPPER w/FOAM
8	MT308715	BRACKET, LOWER CRANK
9	MT337584	BOLT, FORMED HEAD
10	MT310169	SCREW .25-20x.62

Key No.	Part No.	Description
11	MT71055	NUT, LOCK 10-24
12	MT301421E701	PLATE, REAR MT LH
13	MT301419E701	FRAME SUPPORT
14	MT71391	NUT, LOCK .31-18
15	MT71060	WASHER, LOCK
16	MT301420E701	PLATE, REAR MT RH
17	MT313676	SCREW .31-18x.75
18	MT309964E701	LOWER HANDLE

FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

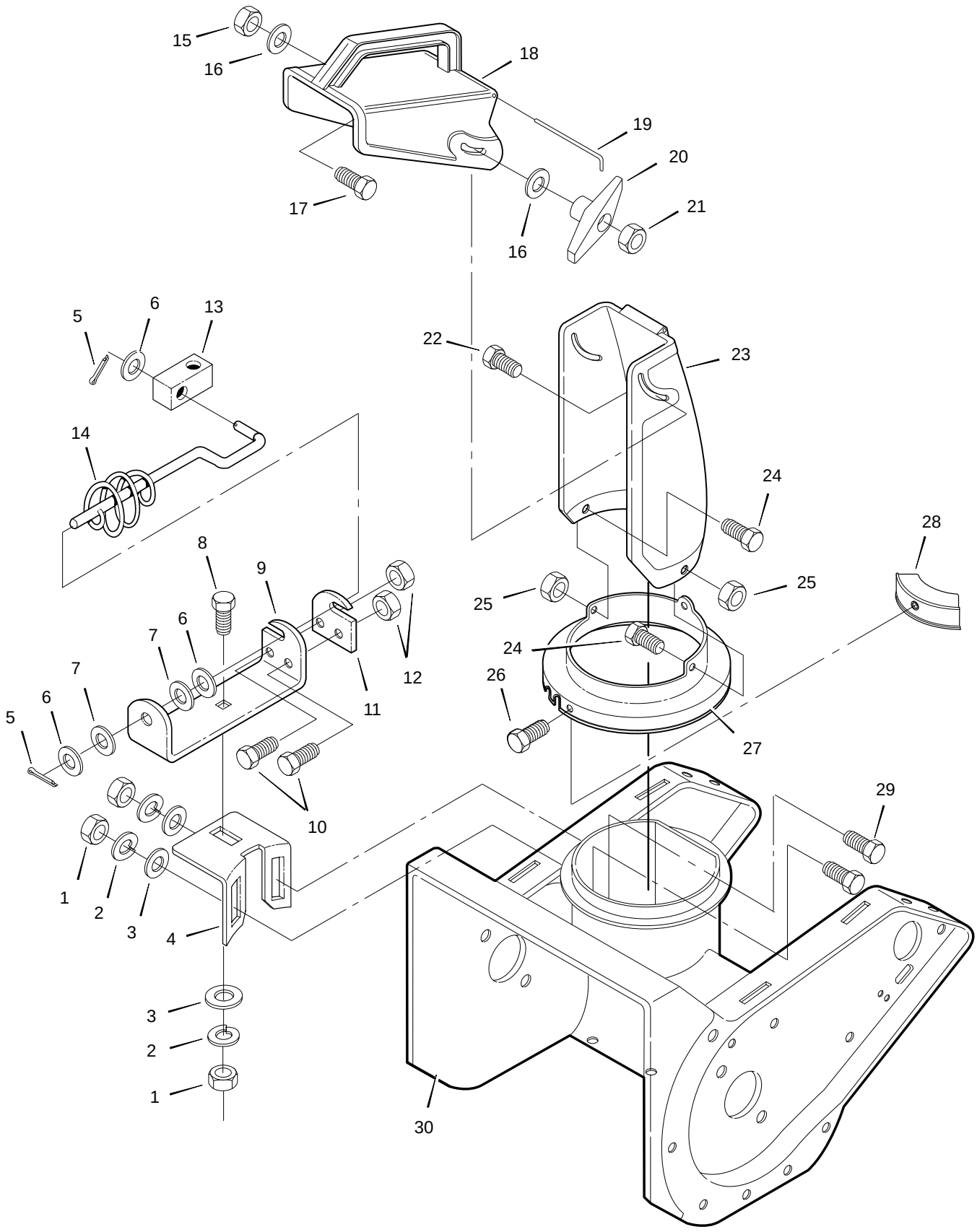
AUGER HOUSING



Key No.	Part No.	Description
1	MT579052	SCREW .25-20X.63
2	MT71067	WASHER, FLAT .281x.63x.065
3	MT54836	PLATE, BEARING RETAINER
4	MT583459	PLATE & BEARING ASSY
5	MT73826	NUT, LOCK .25-20
6	MT340381E701	AUGER HOUSING 21”
7	MT578101	SPACER, SLEEVE
8	MT40677	WASHER, FLAT .640x1.25x.06
9	MT333446	PULLEY, POLY V
10	MT302418	SCRAPER BLADE
11	MT302635	NUT, LOCK .25-20
12	MT321961E701	AUGER ASSY

FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

DISCHARGE CHUTE



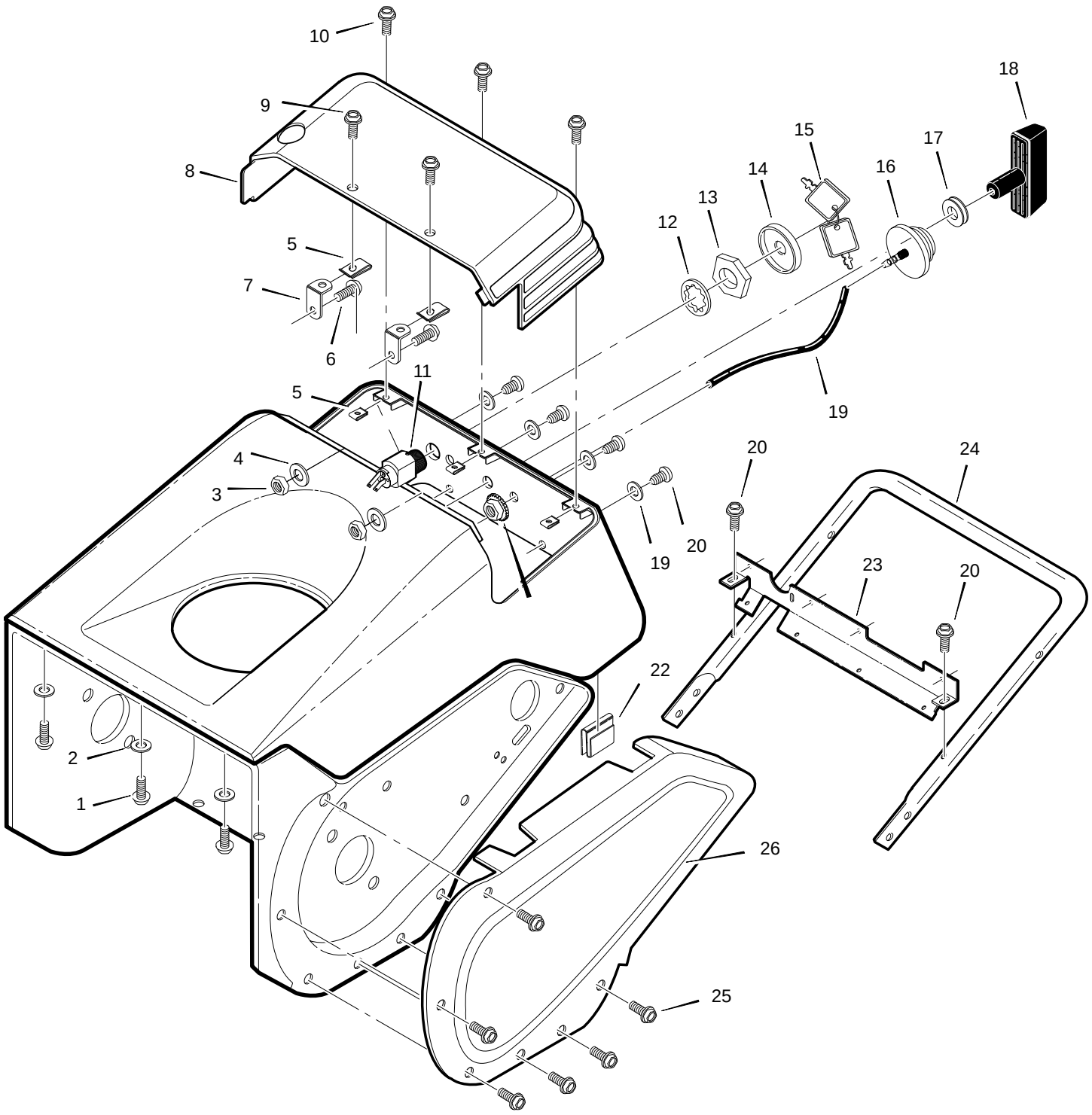
FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

DISCHARGE CHUTE

Key No.	Part No.	Description
1	MT15X144	NUT.31-18 HEX
2	MT71060	WASHER, LOCK
3	MT71071	WASHER, FLAT .349-0.69-.07
4	MT302505E701	BRKT, WORM ADJUST
5	MT71081	PIN, COTTER.094x0.75L
6	MT12452	WASHER, FLAT .400-0.75-.02
7	MT313431	WASHER, SPRING .395-0.73-.01
8	MT340720	BOLT-CARRIAGE .31-18x0.75
9	MT300728E701	BRKT, CHUTE ROD HOLE
10	MT313686	SCREW.25-20x0.50 HHC
11	MT307741	PLATE, CHUTE ROD
12	MT73826	NUT, LOCK.25-20 HEX
13	MT51564	BLOCK, PIVOT CHUTE
14	MT307742	ROD ASSEMBLY, LOWER CHUTE
15	MT71391	NUT, LOCK .31-18 HEX
16	MT71071	WASHER, FLAT .349-0.69-.07
17	MT578088	SCREW.31-18x0.75
18	MT305861	CHUTE, UPPER
19	MT310562	WIRE FORM, HINGE
20	MT57171	WINGKNOB
21	MT15X144	NUT.31-18 HEX
22	MT302843	BOLT-CARRIAGE .31-18x1.50
23	MT305862	CHUTE, LOWER
24	MT313686	SCREW.25-20x0.50
25	MT15X143	NUT, FLANGED LOCK .25-20
26	MT56962	SCREW.25-14x0.62
27	MT307842	CHUTE RING
28	MT300790	CLIP, CHUTE RING
29	MT340720	BOLT-CARRIAGE .31-18x0.75
30	MT340381E701	AUGER HSG, 21”

FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

TOP COVER ASSEMBLY



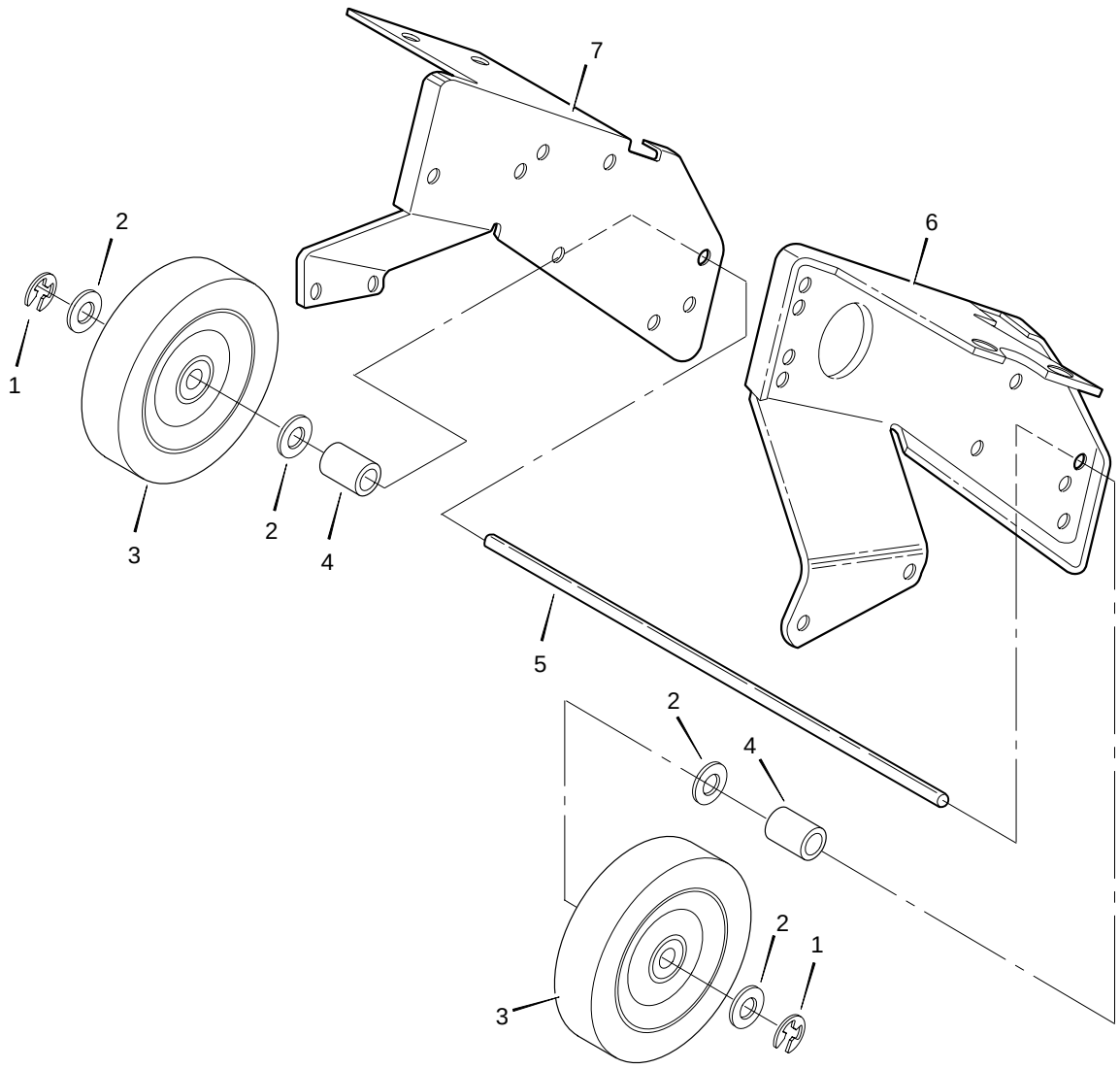
FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

TOP COVER ASSEMBLY

Key No.	Part No.	Description
1	MT309813	SCREW 10-14x.63
2	MT711666	WASHER, FLAT
3	MT71055	NUT, LOCK 10-24
4	MT303041	WASHER, FLAT
5	MT309811	NUT, U TYPE
6	MT12342	SCREW 10-24x.50
7	MT312102	BRACKET, ACCESS COVER
8	MT305871	COVER, ENGINE ACCESS
9	MT312094	SCREW 10-16x.62
10	MT312362	SCREW 10-16x.75
11	MT56992	INGNITION SWITCH
12	MT313683	WASHER, INTERNAL LOCK
13	MT300193	NUT, .62-32 PLASTIC
14	MT300194	BOOT, SWITCH
15	MT49643	KEYS & RING
16	MT54601	PRIMER BULB
17	MT57587	GROMMET & WASHER
18	MT333643	KNOB, STANDARD T
19	MT1259	HOSE, PRIMER
20	MT309814	SCREW 10-24x.63
21	MT303008	NUT .25-20 KEPS
22	MT313057	S CLIP
23	MT397761	BRACKET, SHROUD MTG
24	MT309964E701	LOWER HANDLE
25	MT310798	SCREW 10-24x.38
26	MT302416	COVER, BELT

FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

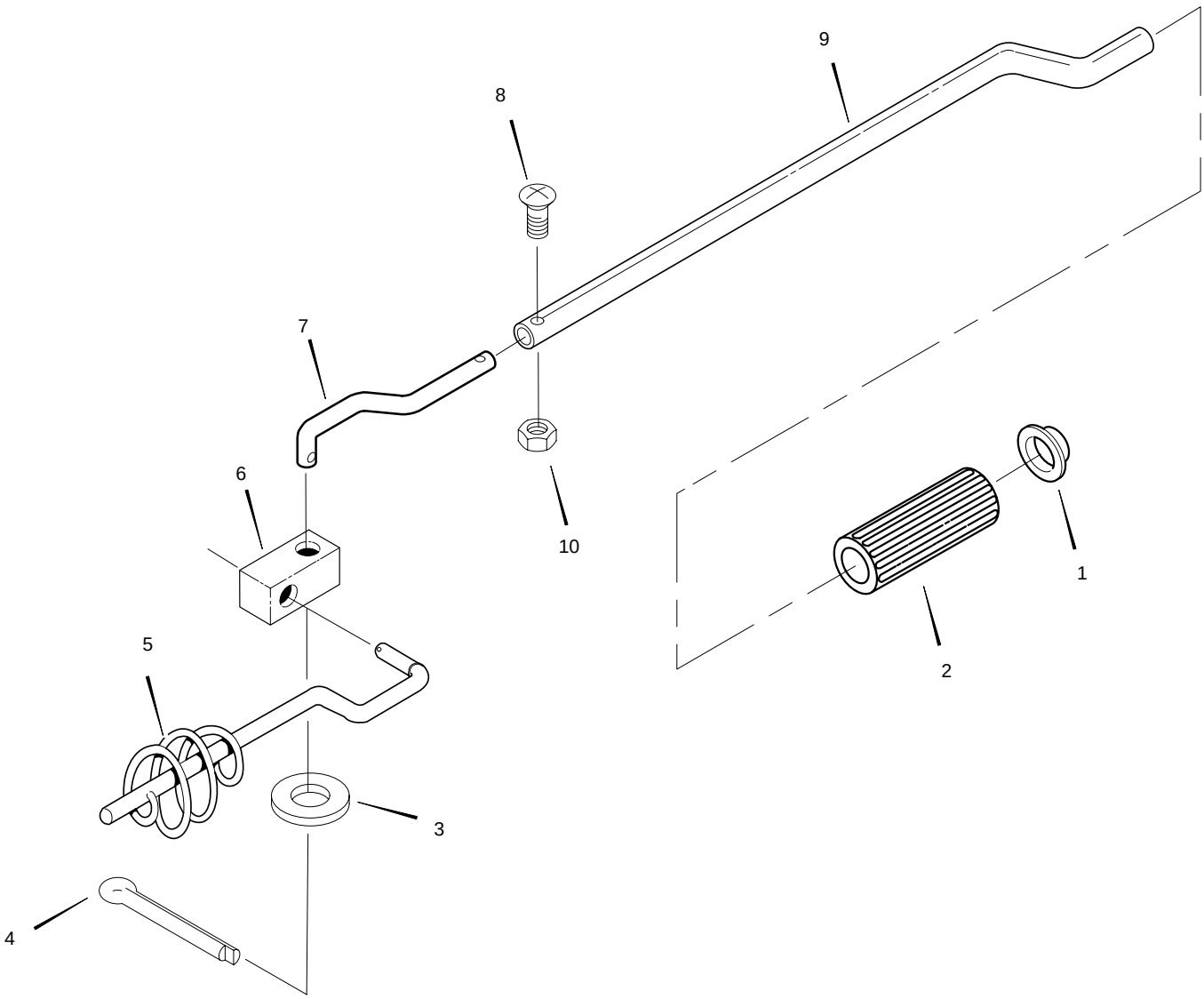
WHEEL ASSEMBLY



Key No.	Part No.	Description
1	MT577598	RING, RET. E
2	MT71072	WASHER, FLAT .406x.81x.07
3	MT1501741	7.75”X1.75” WHEEL
4	MT309656	SPACER, SLEEVE
5	MT307719	AXLE SHAFT
6	MT301421E701	PLATE, REAR MT LH
7	MT301420E701	PLATE, REAR MT RH

FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

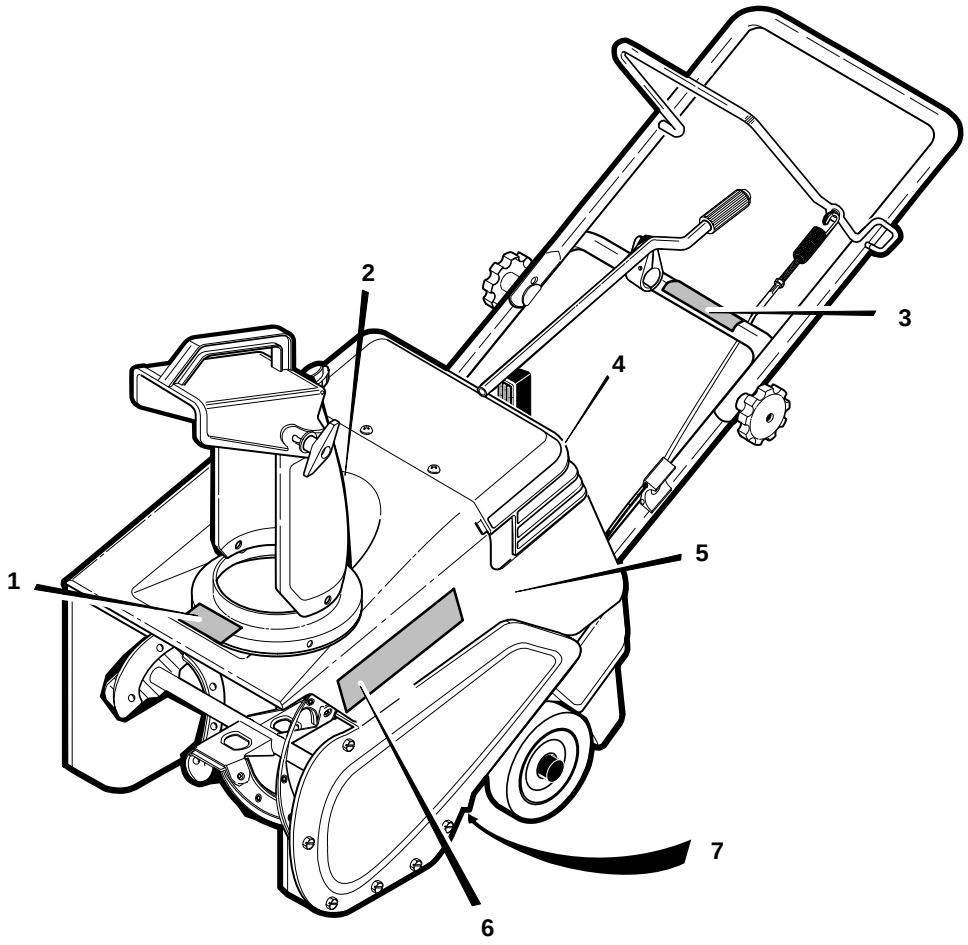
CHUTE ROD ASSEMBLY



Key No.	Part No.	Description
1	MT331532	PUSH NUT
2	MT307755	KNOB, GRIP
3	MT12452	WASHER, FLAT .400x.75x.02
4	MT71081	PIN, COTTER
5	MT307742	ROD, CHUTE CNTRL LWR
6	MT51564	BLOCK, PIVOT
7	MT307756	ROD, CHUTE CNTRL MID
8	MT314159	NUT, LOCK 10-32
9	MT314158	SCREW, 10-32X.88
10	MT309449	ROD, CHUTE UPPER

FRONTIER MODEL ST0521M FACTORY MODEL 621501x16NA
FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

DECALS

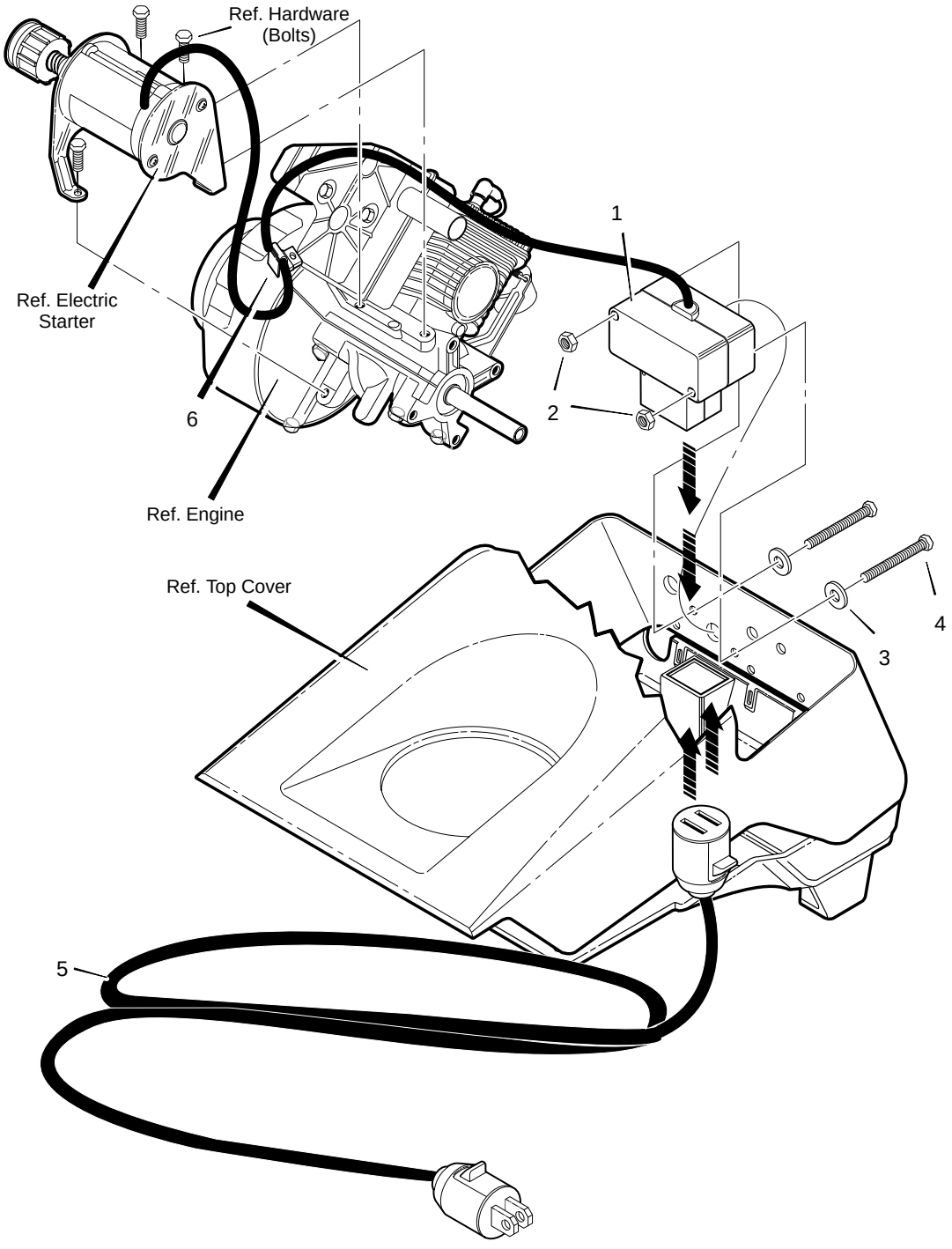


Key No.	Part No.	Description
1	MT48x5262	DECAL, DANGER AUGER
2	MT48x2034	DECAL, DANGER CHUTE
3	MT337524	DECAL, AUGER CONTROL
4	MT340709	DECAL, CONTROL PANEL ST0521E (621500x16NA)
	MT340708	DECAL, CONTROL PANEL ST0521M (621501x16NA)
5	MT69880	DECAL, HOT MUFFLER
6	MT48x5260	DECAL, FRONTIER ST0521
7	MT48x5202	DECAL, EPA
*	MTF-031039C	OPERATOR'S MANUAL

* Not Illustrated

FRONTIER MODEL ST0521E FACTORY MODEL 621500x16NA

ELECTRIC STARTER



Key No.	Part No.	Description
1	NA	INCLUDED WITH ENGINE
2	MT271163	NUT, KEPS 8-32
3	MT414106	WASHER, FLAT
4	MT311633	SCREW 8-32x3.00
5	MT56023	CORD, EXTENSION
6	MT57569	RETAINER

NOTES

NOTES

SPECIFICATIONS ST0521M, ST0521E

Engine	Tecumseh Snow King 2-Cycle
Horsepower	5 hp
Starter	ST0521M Recoil ST0521E Electric
Fuel Capacity	1.5 quart
Drive System	Auger
Tire Diameter	7”
Clearing Width	21”
Housing Height	12”
Auger Diameter	9”
Auger Type	Rubber-edged
Chute Rotation	Remote
Chute Turning Radius	190°
Deflector Control	Manual
Weight	ST0521M 89 lbs ST0521E 93 lbs
Warranty - Engine	2 years
Warranty - Machine	3 years